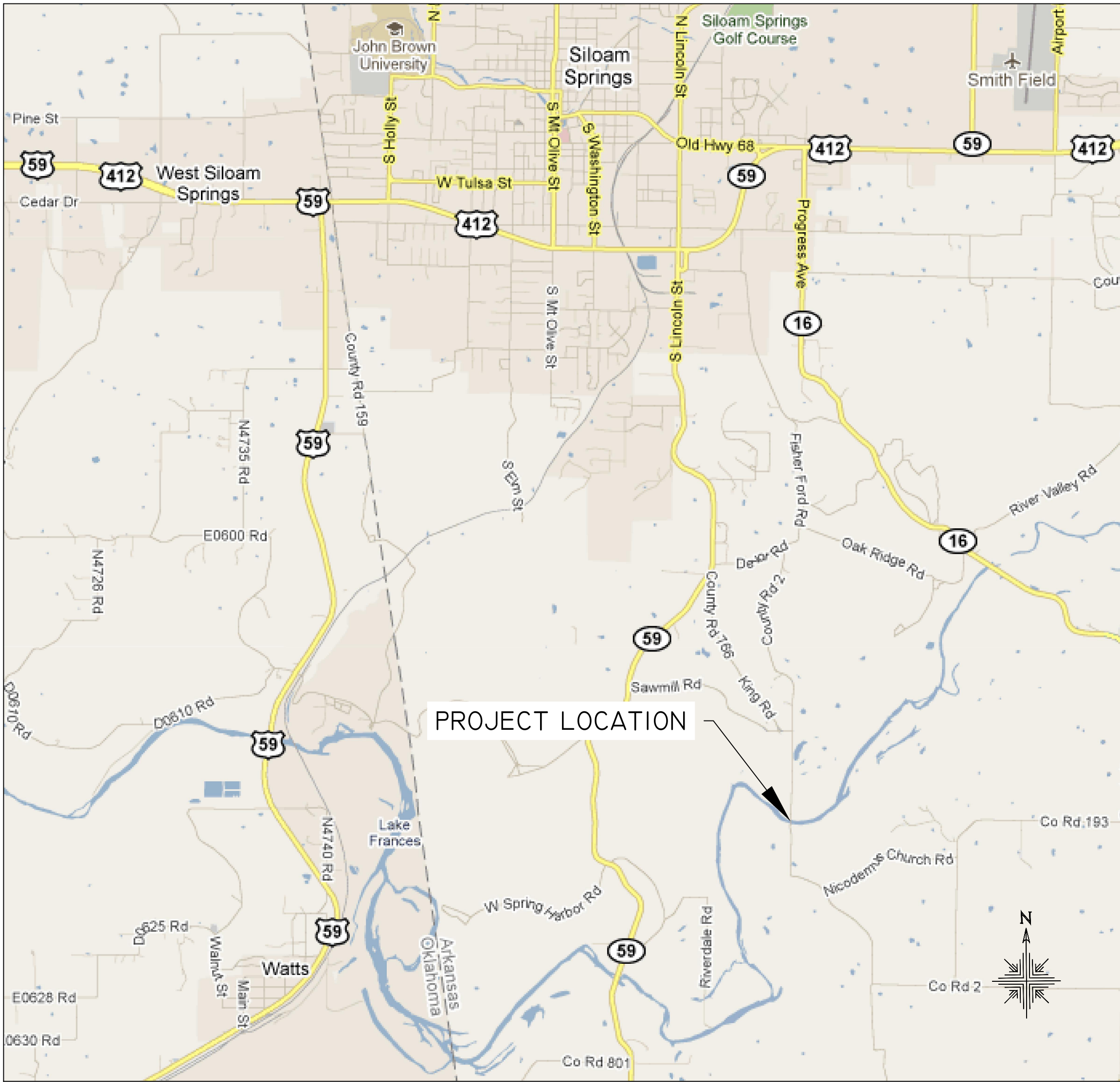


# BENTON COUNTY PERMIT REVISION

## NOT FOR CONSTRUCTION



PROJECT LOCATION  
LATITUDE 36° 7'23.75"N  
LONGITUDE 94°30'58.82"W

### PROJECT LOCATION MAP

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- 7. INSTREAM STORMWATER POLLUTION PREVENTION PLAN (STAGE 1)
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- 9. EROSION CONTROL DETAILS
- 10. UPLAND DETAILS
- 11. UPLAND DETAILS
- 12. CHANGING STRUCTURE DETAILS
- 13. TYPICAL INSTREAM DETAILS
- 14. SPECIFICATIONS AND NOTES

#### ADJACENT PROPERTY OWNERS NOTIFIED VIA CERTIFIED MAIL

- 1. WELCH, RICHARD D AND LISSA  
21625 SAWMILL RD. SILOAM SPRINGS, AR 72761
- 2. HOUSTON, LOUIS B  
21721 SAWMILL RD. SILOAM SPRINGS, AR 72761
- 3. TORRES, MARIAN ORCUTT  
19208 FISHER FORD RD. SILOAM SPRINGS, AR 72761
- 4. ORCUTT REVOCABLE TRUST, ROBIN R TRUSTEE  
15117 HIGHWAY 43 N, SILOAM SPRINGS, AR 72761
- 5. GL HILL, LTD  
415 2ND ST., INDIAN ROCKS BEACH, FL 33785-2569

#### PROJECT PARCEL LEGAL DESCRIPTIONS (AS PROVIDED BY CASTER AND ASSOCIATES LAND SURVEYING)

PARCEL 18-13173-001	PARCEL 18-13187-001
PART OF THE EAST HALF (E½) OF THE EAST HALF (E½) OF THE NORTHEAST QUARTER (NE¼) OF SECTION 29, TOWNSHIP 17 NORTH, RANGE 33 WEST, BENTON COUNTY, ARKANSAS, AND BEING MORE PARTICULARLY DESCRIBED AS:  COMMENCING AT THE NE CORNER OF SAID SECTION 29; THENCE ALONG THE EAST LINE OF SAID E½ OF THE E½ OF THE NE¼ S00°10'21"W 393.22 FEET TO THE POINT OF BEGINNING; THENCE CONTINUING ALONG SAID EAST LINE S00°10'21"W 2256.79 FEET TO THE SOUTH LINE OF SAID E½ OF THE E½ OF THE NE¼; THENCE ALONG SAID SOUTH LINE N89°43'17"W 660.85 FEET TO THE WEST LINE OF SAID E½ OF THE E½ OF THE NE¼; THENCE ALONG SAID WEST LINE N00°05'24"E 2255.35 FEET; THENCE S89°50'47"E 664.10 FEET TO THE POINT OF BEGINNING, CONTAINING 1,494,593.87 SQUARE FEET OR 34.31 ACRES, MORE OR LESS, AND SUBJECT TO ALL RIGHTS-OF-WAY, EASEMENTS AND RESTRICTIVE COVENANTS OF RECORD OR FACT.	A PART OF THE EAST HALF (E½) OF THE EAST HALF (E½) OF THE SOUTHEAST QUARTER (SE¼) OF SECTION 29, TOWNSHIP 17 NORTH, RANGE 33 WEST, BENTON COUNTY, ARKANSAS, AND BEING MORE PARTICULARLY DESCRIBED AS:  BEGINNING AT THE EAST ¼ QUARTER OF SECTION 29; THENCE ALONG THE EAST LINE OF SAID E½ OF THE E½ S00°10'21"W 273.42 FEET; THENCE N83°14'24"W 106.89 FEET; THENCE N73°05'19"W 201.03 FEET; THENCE N57°57'05"W 105.63 FEET; THENCE N50°13'49"W 109.40 FEET; THENCE N63°33'59"W 31.35 FEET; THENCE N55°58'33"W 66.70 FEET; THENCE N61°16'35"W 34.64 FEET; THENCE N78°33'40"W 58.11 FEET TO THE NORTH LINE OF SAID E½ OF THE E½; THENCE ALONG SAID NORTH LINE S89°43'17"E 643.62 FEET TO THE POINT OF BEGINNING, CONTAINING 104,006.11 SQUARE FEET OR 2.39 ACRES, MORE OR LESS, AND SUBJECT TO ALL RIGHTS-OF-WAY, EASEMENTS AND RESTRICTIVE COVENANTS OF RECORD OR FACT.
***CONFIRM ACREAGE WITH COUNTY RECORDS AND SURVEYOR WHICH LIST ACREAGE AS 33.92 ACRES.	

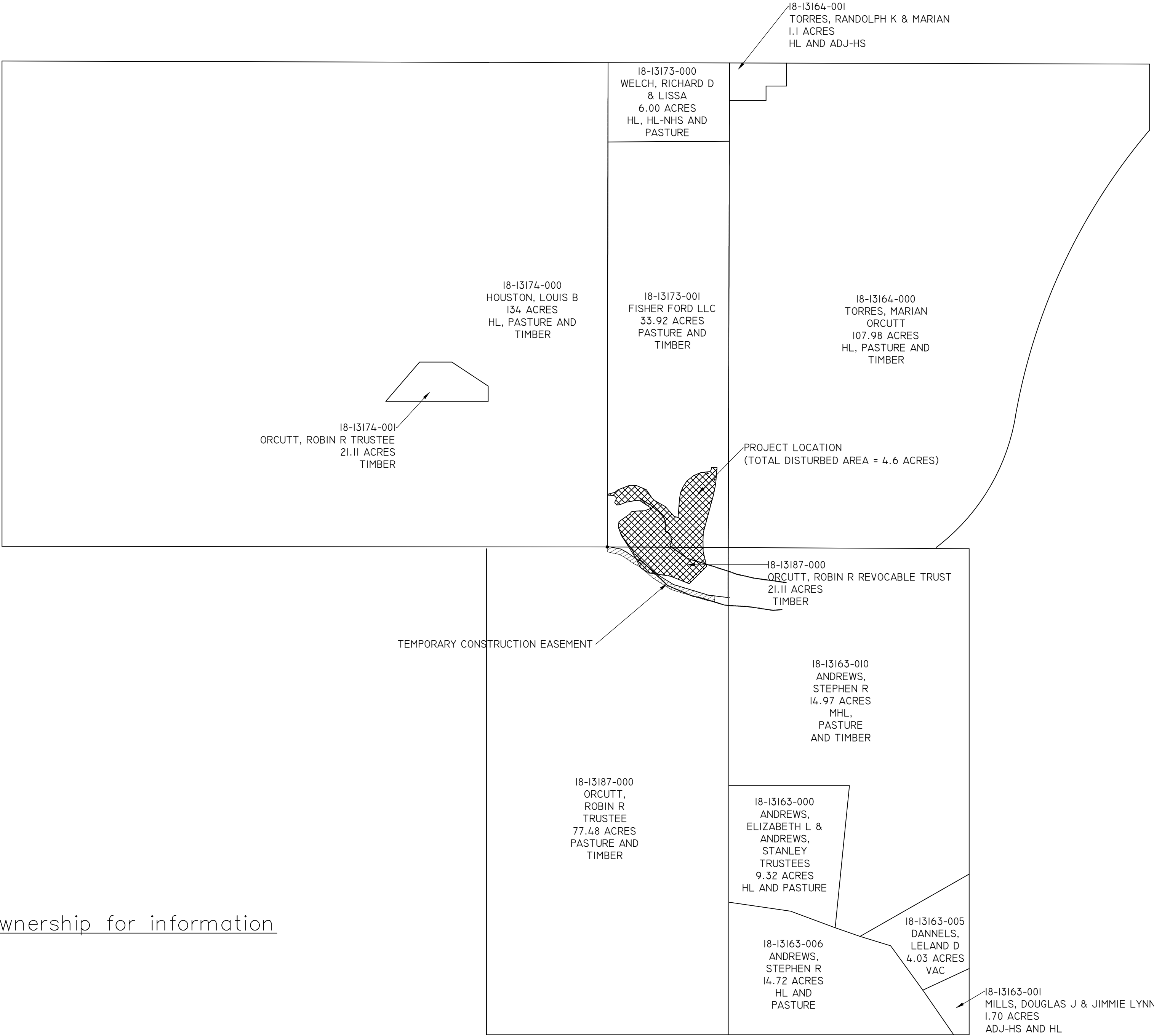
FINAL PROJECT: CITY OF SILOAM SPRINGS  
OWNER C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

ORIGINAL PROJECT : FISHER FORD, LLC  
OWNER AKA WALTON FAMILY FOUNDATION  
C/O ROB BROTHERS  
PO Box 1860  
BENTONVILLE, AR 72712-1860

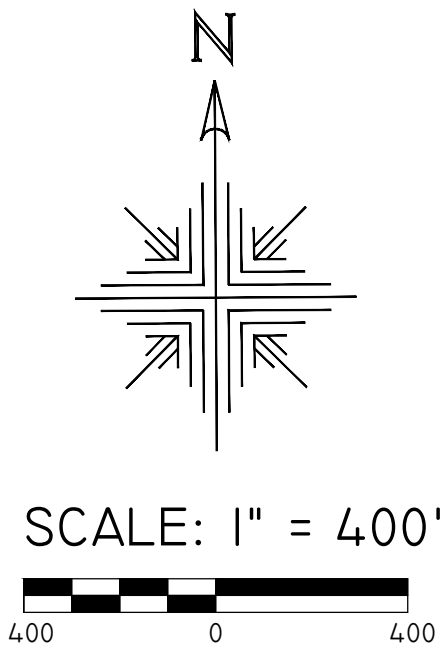
ENGINEER: GARY M. LACY, P.E.  
RECREATION ENGINEERING AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER, CO 80302  
303-545-5883  
INFO@BOATERPARKS.COM



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Note:  
Property ownership for information  
only



RECREATION ENGINEERING  
AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER | CO | 80302  
WWW.BOATERPARKS.COM

WHITEWATER AND HABITAT IMPROVEMENTS

ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

SURROUNDING LAND OWNERS AND PROPERTY USES  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

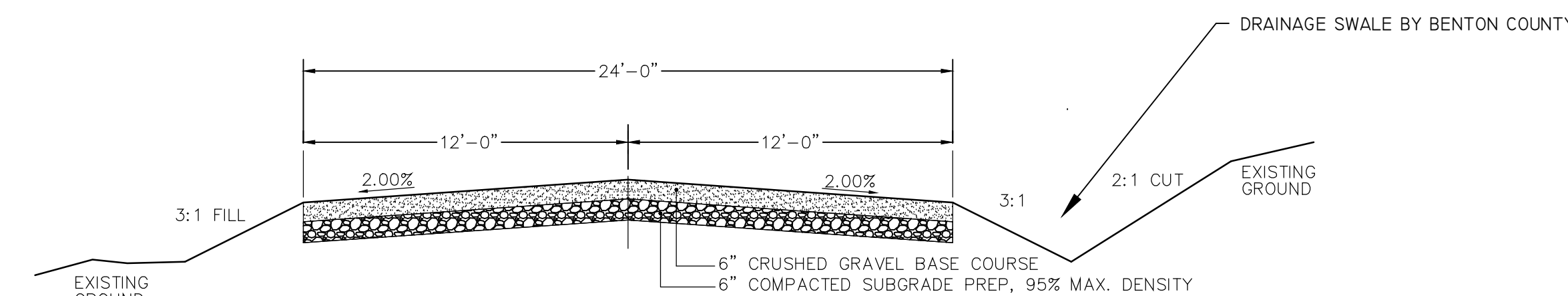
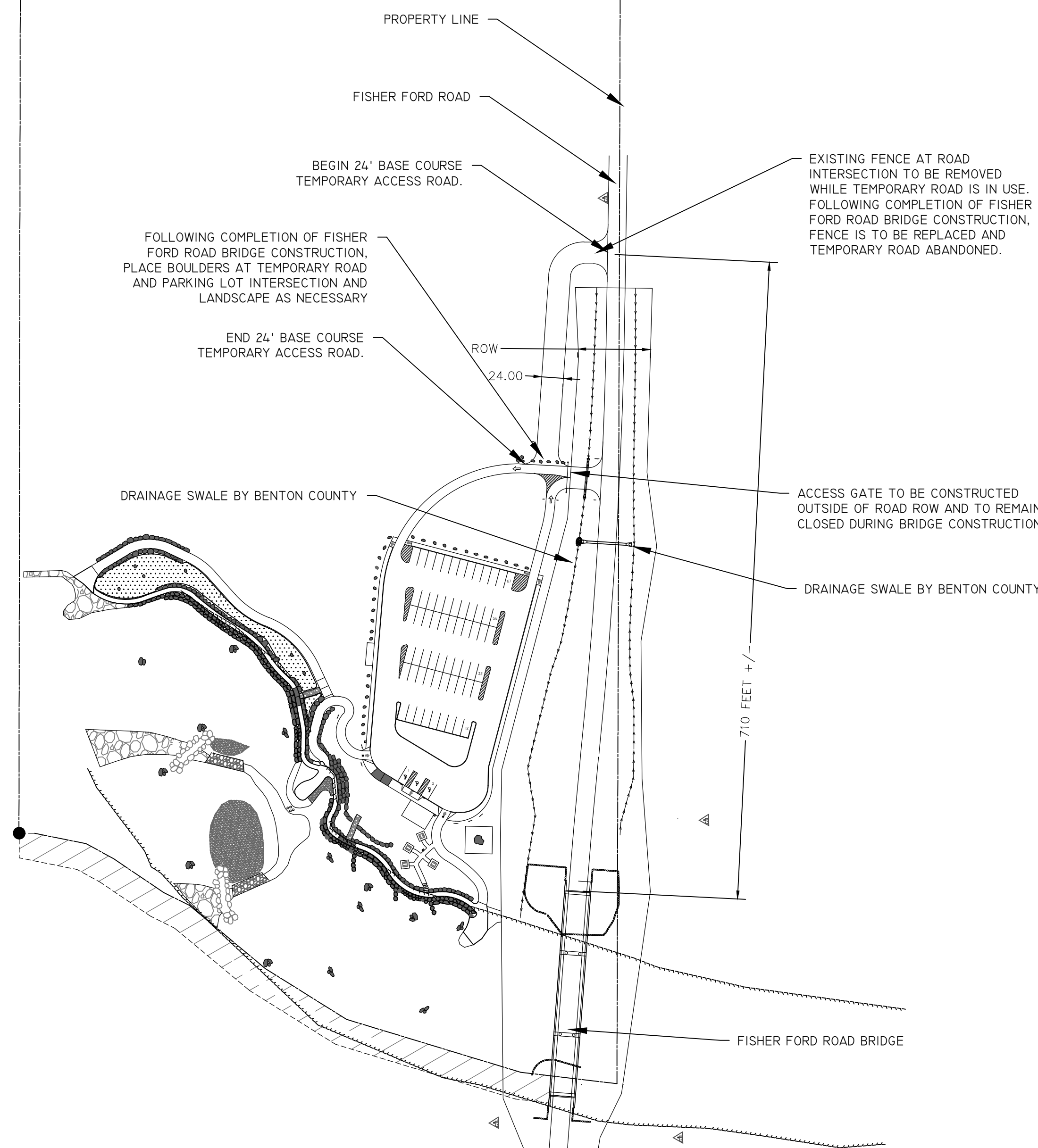
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DRAFTED: AR
CHECKED: GL, SS
PLOT DATE: MAY 31, 2013
REVISIONS:

SHEET NUMBER:

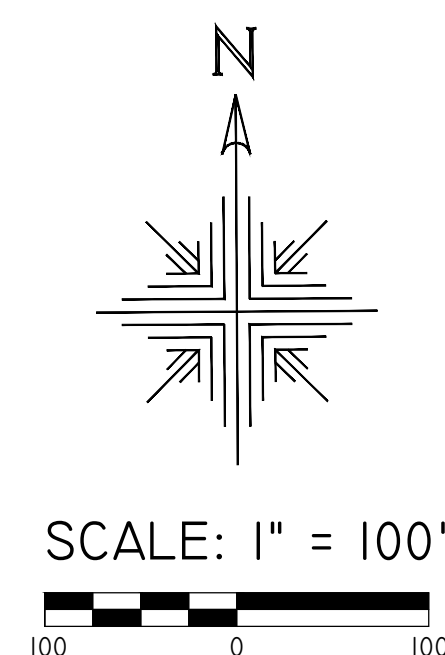
2

SHEET 2 OF 14

NOT FOR CONSTRUCTION



24' TEMPORARY ACCESS ROAD



## WHITEWATER AND HABITAT IMPROVEMENTS

ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

TEMPORARY ACCESS ROAD PLAN  
NOT FOR CONSTRUCTION



RECREATION ENGINEERING  
AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER | CO | 80302  
WWW.BOATERPARKS.COM

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS  
DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

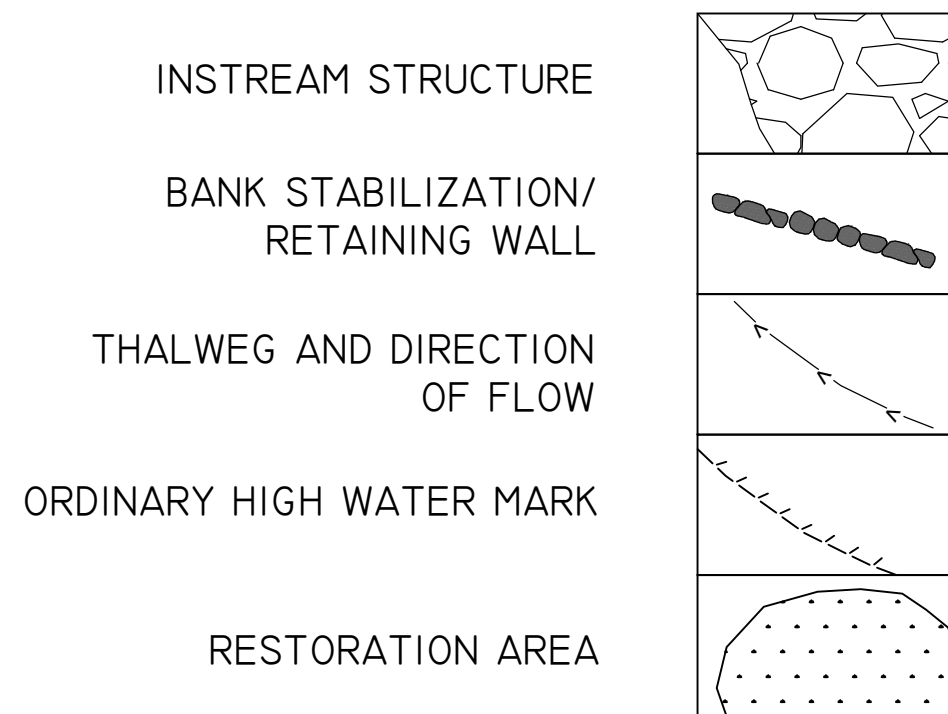
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SHEET 3 OF 14



LEGEND

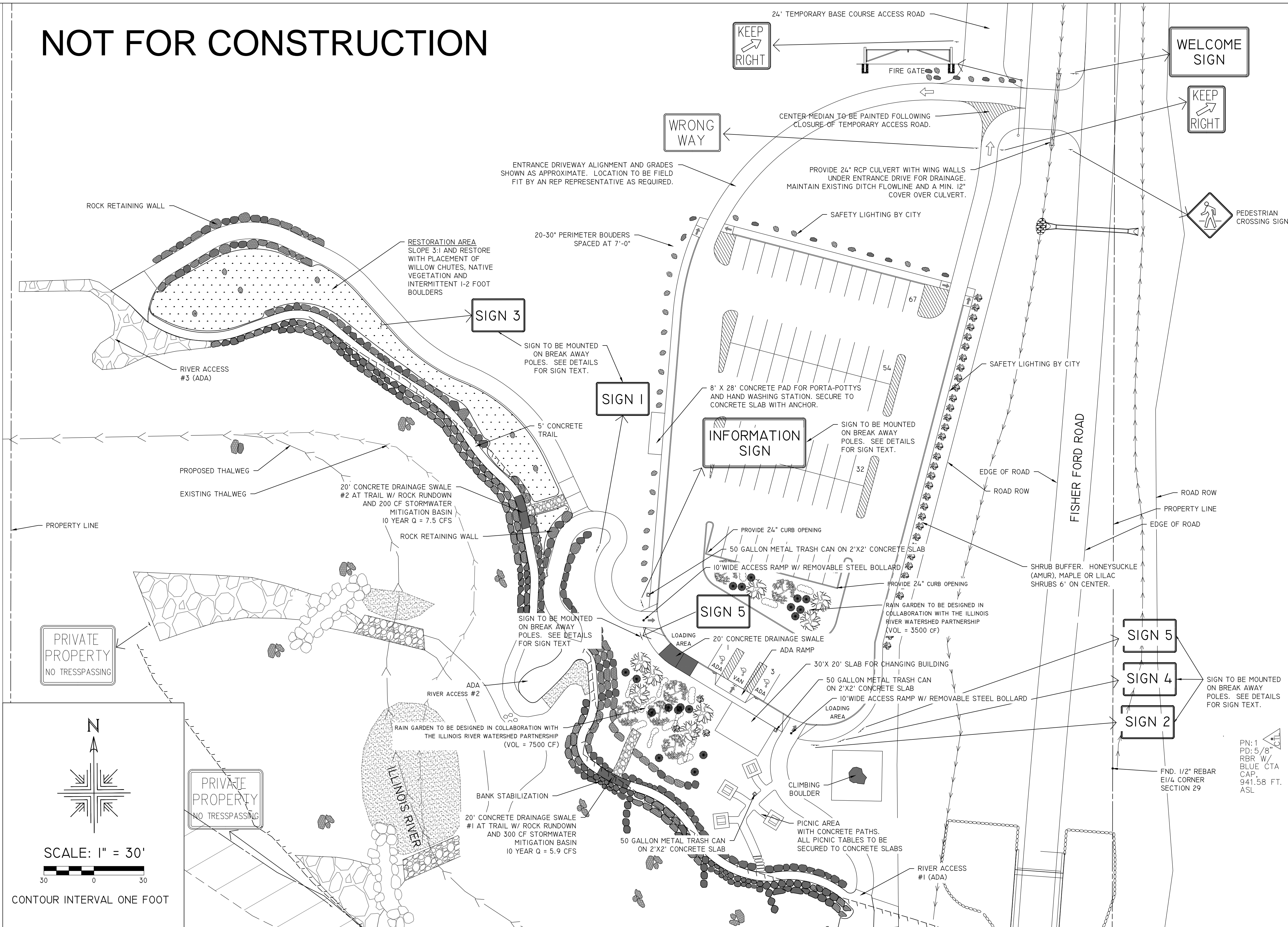


STORMWATER NOTE:  
THE TOTAL DISTURBED AREA FOR THE PROPOSED PROJECT IS 2.4 ACRES. THE TOTAL STORWATER DETENTION VOLUME IS 11500 CF OR 4792 CF PER ACRE.

GENERAL NOTES:

1. ALL ELEVATIONS GIVEN IN FEET ABOVE SEA LEVEL (NAVD 1988). ARKANSAS STATE PLANE GRID COORDINATES NORTH ZONE. HORIZONTAL DATUM NAD83 (CORS96). CONTROL POINT #1, N661007.2240 E569456.8660 941.58 CTL 5/8" RBR W/ BLUE CTA CAP.
2. ROCK FILL/HATCH AND VEGETATIVE IMAGES SHOWN FOR ILLUSTRATIVE PURPOSES. NOT TO SCALE.
3. MINOR CHANGES MAY BE MADE BY AN REP REPRESENTATIVE.
4. AN REP REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION OF KEY PORTIONS OF THE PROJECT.
5. THE BATHYMETRIC SURVEY WAS COMPLETED ON OCTOBER 12, 2010 BY PEAK7 CONSULTING AND RECREATION ENGINEERING AND PLANNING. THE MEAN FLOW ON THIS DAY FOR USGS 07195430 ILLINOIS RIVER SOUTH OF SILOAM SPRINGS, ARKANSAS WAS 185 CUBIC FEET PER SECOND. THE LOWEST MEAN MONTHLY FLOW FOR THIS GAUGE IS DURING AUGUST WHEN FLOWS AVERAGE 246CFS. BASED ON THIS INFORMATION, REP USED THE DAY OF SURVEY WATER SURFACE ELEVATION AS AN APPROXIMATION OF THE ORDINARY LOW WATER LINE.
6. THE CITY OF SILOAM SPRINGS IS RESPONSIBLE FOR ALL MAINTENANCE AND REPLACEMENT OF LANDSCAPE BUFFERS, SIGNAGE, GATES, STORMWATER DRAINAGE SYSTEM, ALL TRAILS AND ACCESS POINTS AND PARKING LOT MAINTENANCE. IN ADDITION, THE CITY IS RESPONSIBLE FOR ALL TRASH REMOVAL AND MAINTENANCE OF PORTA-POTTY FACILITIES AND MANAGEMENT OF ALL OF THESE RESOURCES DURING FLOODING CONDITIONS.
7. BASE FLOOD ELEVATION FOR THIS PROJECT IS 946.5 FEET AS SHOWN IN THE FLOOD DETERMINATION REPORT COMPLETED BY RECREATION ENGINEERING AND PLANNING, MARCH 2013.
8. THE PROJECT AREA IS LOCATED WITHIN A FEMA ZONE A DESIGNATION. THE 100-YR FLOODPLAIN WATER SURFACE ELEVATION IS 946.5 FT ASL BASED ON FEMA 265.

NOT FOR CONSTRUCTION



WHITewater AND HABITAT IMPROVEMENTS  
ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

PROJECT OVERVIEW PLAN  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS  
DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

SHEET NUMBER:

4

SHEET 4 OF 14



RECREATION ENGINEERING  
AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER | CO | 80302  
WWW.BOATERPARKS.COM

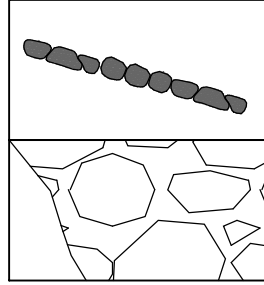


NOT FOR CONSTRUCTION

### LEGEND

BANK STABILIZATION/  
RETAINING WALL

## INSTREAM STRUCTURE



GENERAL NOTES:

I. ALL ELEVATIONS GIVEN IN FEET ABOVE SEA LEVEL (NAVD 1988). ARKANSAS STATE PLANE GRID COORDINATES NORTH ZONE. HORIZONTAL DATUM NAD83 (CORS96). CONTROL POINT #1, N661007.2240 E569456.8660 941.58 CTL 5/8" RBR W/ BLUE CTA CAP.

2. ROCK FILL/HATCH AND VEGETATIVE IMAGES SHOWN FOR ILLUSTRATIVE PURPOSES. NOT TO SCALE.

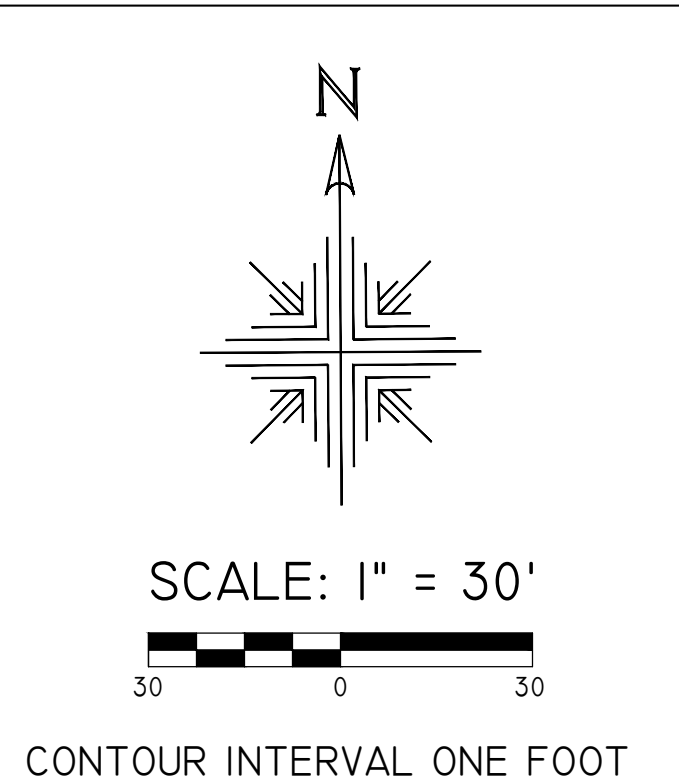
3. MINOR CHANGES MAY BE MADE BY AN REP  
REPRESENTATIVE.

4. AN REP REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION OF KEY PORTIONS OF THE PROJECT.

5. THE BATHYMETRIC SURVEY WAS COMPLETED ON OCTOBER 12, 2010 BY RECREATION ENGINEERING AND PLANNING. THE MEAN FLOW ON THIS DAY FOR USGS 07195430 ILLINOIS RIVER SOUTH OF SILOAM SPRINGS, ARKANSAS WAS 185 CUBIC FEET PER SECOND. THE LOWEST MEAN MONTHLY FLOW FOR THIS GAUGE IS DURING AUGUST WHEN FLOWS AVERAGE 246CFS. BASED ON THIS INFORMATION, REP USED THE DAY OF SURVEY WATER SURFACE ELEVATION AS AN APPROXIMATION OF THE ORDINARY LOW WATER LINE.

6. THE CITY OF SILOAM SPRINGS IS RESPONSIBLE FOR ALL MAINTENANCE AND REPLACEMENT OF LANDSCAPE BUFFERS, SIGNAGE, GATES, STORMWATER DRAINAGE SYSTEM, ALL TRAILS AND ACCESS POINTS AND PARKING LOT MAINTENANCE. IN ADDITION, THE CITY IS RESPONSIBLE FOR ALL TRASH REMOVAL AND MAINTENANCE OF PORTA-POTTY FACILITIES AND MANAGEMENT OF ALL OF THESE RESOURCES DURING FLOODING CONDITIONS.

7. BASE FLOOD ELEVATION FOR THIS PROJECT IS 946.5 FEET AS SHOWN IN THE FLOOD DETERMINATION REPORT COMPLETED BY RECREATION ENGINEERING AND PLANNING, MARCH 2013.



PN: 1  
PD: 5/8"  
RBR W/  
BLUE CTA  
CAP,  
941.58 FT.  
ASL

## WHITEWATER AND HABITAT IMPROVEMENTS

ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

DIMENSION AND SITE LAYOUT PLAN  
NOT FOR CONSTRUCTION



RECREATION ENGINEERING  
AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER | CO | 80302  
WWW.BOATERPARKS.COM

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS
DRAFTED: AR
CHECKED: GL, SS
PLOT DATE: MAY 31, 2013
REVISIONS:

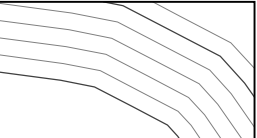
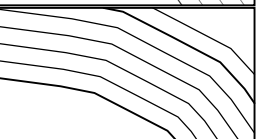
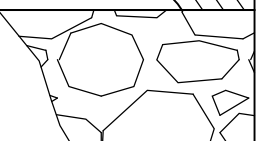
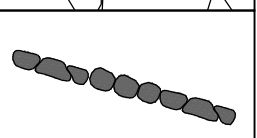
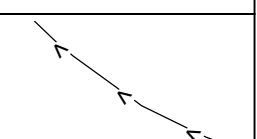
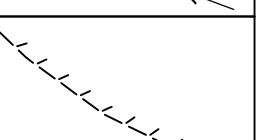
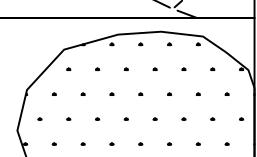
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SHEET 5 OF 14

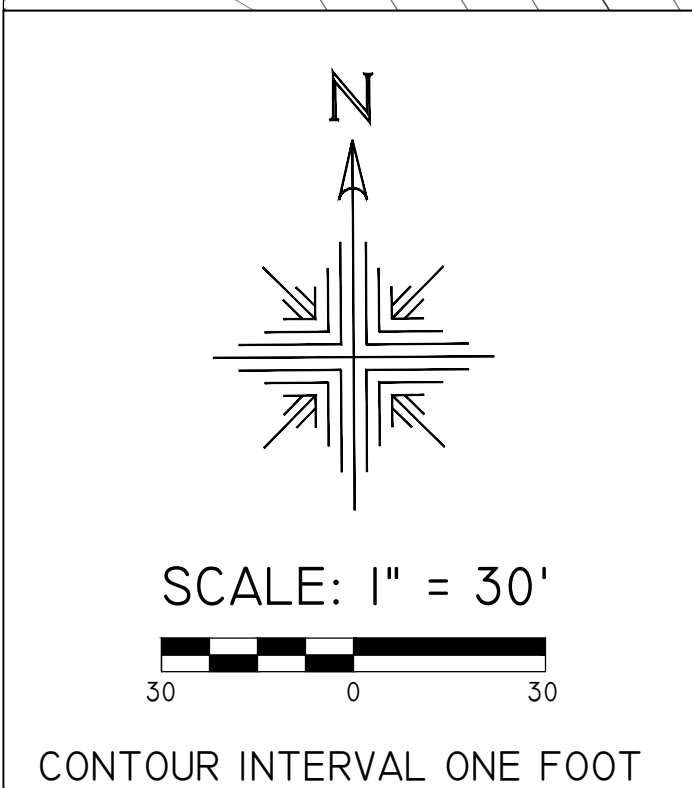


LEGEND

EXISTING CONTOUR LINES	
DESIGN CONTOUR LINES	
INSTREAM STRUCTURE	
BANK STABILIZATION/ RETAINING WALL	
THALWEG AND DIRECTION OF FLOW	
ORDINARY HIGH WATER MARK	
RESTORATION AREA	

GENERAL NOTES:

1. ALL ELEVATIONS GIVEN IN FEET ABOVE SEA LEVEL (NAVD 1988).
2. ROCK FILL/HATCH AND VEGETATIVE IMAGES SHOWN FOR ILLUSTRATIVE PURPOSES. NOT TO SCALE.
3. MINOR CHANGES MAY BE MADE BY AN REP REPRESENTATIVE.
4. AN REP REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION OF KEY PORTIONS OF THE PROJECT.
5. THE BATHYMETRIC SURVEY WAS COMPLETED ON OCTOBER 12, 2010 BY RECREATION ENGINEERING AND PLANNING. THE MEAN FLOW ON THIS DAY FOR USGS 07195430 ILLINOIS RIVER SOUTH OF SILOAM SPRINGS, ARKANSAS WAS 185 CUBIC FEET PER SECOND. THE LOWEST MEAN MONTHLY FLOW FOR THIS GAUGE IS DURING AUGUST WHEN FLOWS AVERAGE 246CFS. BASED ON THIS INFORMATION, REP USED THE DAY OF SURVEY WATER SURFACE ELEVATION AS AN APPROXIMATION OF THE ORDINARY LOW WATER LINE.
6. THE CITY OF SILOAM SPRINGS IS RESPONSIBLE FOR ALL MAINTENANCE AND REPLACEMENT OF LANDSCAPE BUFFERS, SIGNAGE, GATES, STORMWATER DRAINAGE SYSTEM, ALL TRAILS AND ACCESS POINTS AND PARKING LOT MAINTENANCE. IN ADDITION, THE CITY IS RESPONSIBLE FOR ALL TRASH REMOVAL AND MAINTENANCE OF PORTA-POTTY FACILITIES AND MANAGEMENT OF ALL OF THESE RESOURCES DURING FLOODING CONDITIONS.
7. BASE FLOOD ELEVATION FOR THIS PROJECT IS 946.5 FEET AS SHOWN IN THE FLOOD DETERMINATION REPORT COMPLETED BY RECREATION ENGINEERING AND PLANNING, MARCH 2013.



NOT FOR CONSTRUCTION



RECREATION ENGINEERING  
AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER | CO | 80302  
WWW.BOATERPARKS.COM

WHITEWATER AND HABITAT IMPROVEMENTS  
ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

PROJECT GRADING PLAN  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS  
DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

SHEET NUMBER:

6

SHEET 6 OF 14



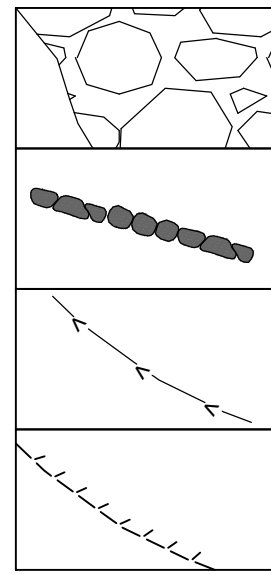
LEGEND

INSTREAM STRUCTURE

BANK STABILIZATION/  
RETAINING WALL

THALWEG AND DIRECTION  
OF FLOW

ORDINARY HIGH WATER MARK

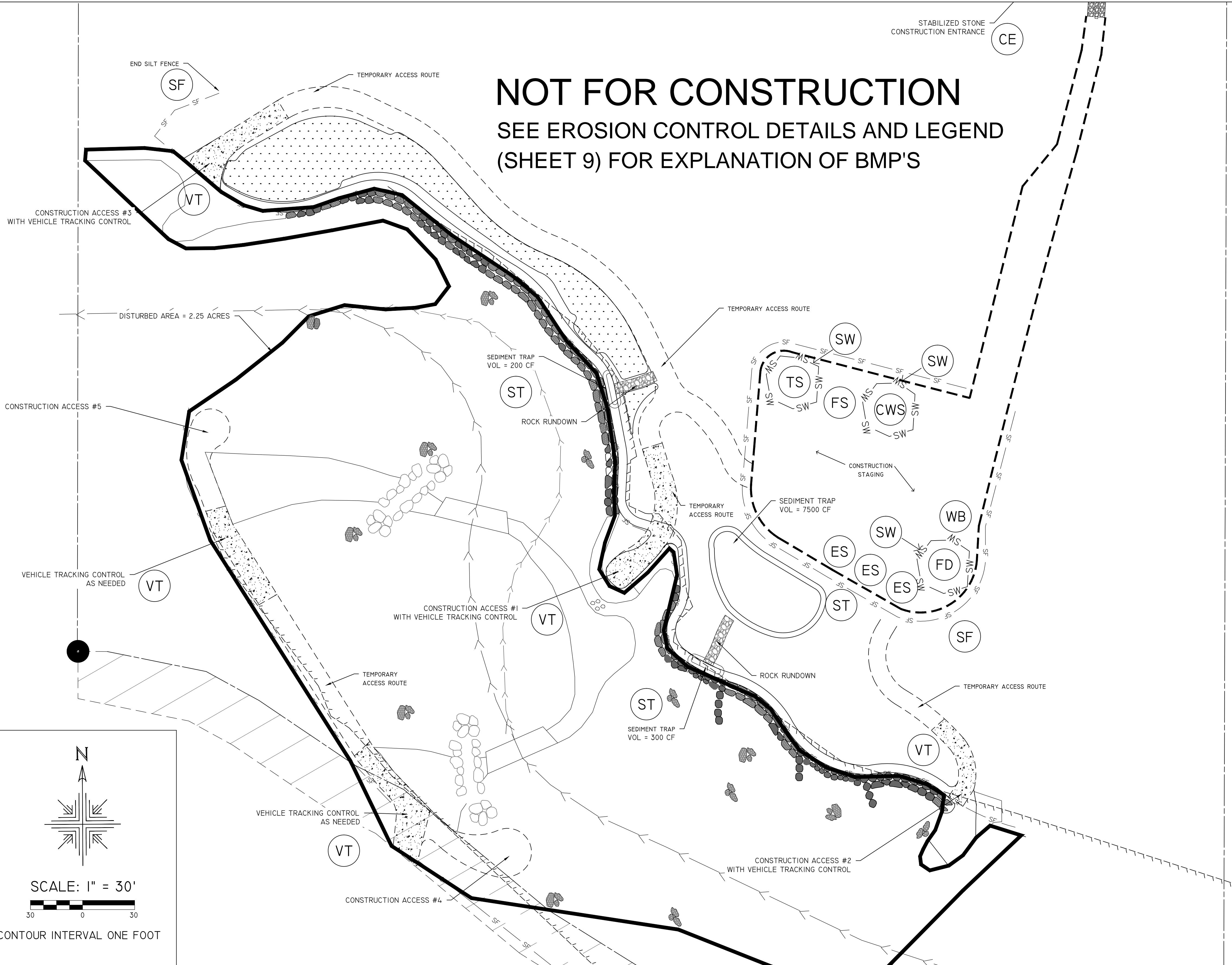


EROSION CONTROL WORK TASKS AND APPROXIMATE SEQUENCE:

1. INSTALL STABILIZED CONSTRUCTION ENTRANCE.
2. CLEAR AND GRUB FOR EARTH DIKS, SILT FENCE, STRAW WATTLES AND SEDIMENT BASINS.
3. COMPLETE APPROXIMATE GRADING (ROUGH-CUT) IN LOT AND ACCESS POINTS.
4. INSTALL SILT FENCE/STRAW WATTLE AROUND MATURE TREES.
5. INSTALL ALL SEDIMENT CONTROL DEVICES.
6. INSTALL RIVER ACCESS AND VEHICLE TRACKING CONTROL SITES.
7. BEGIN INSTREAM WORK. CONTRACTOR TO DETERMINE WORK SEQUENCE.
8. ALL DISTURBED AREAS TO BE RESEEDDED WITH MULCH TACKIFIER FOLLOWING INSTREAM CONSTRUCTION.
9. AFTER FINAL INSTREAM CONSTRUCTION, REMOVE ALL SEDIMENT CONTROL DEVICES EXCEPT PONDS DESIGNED TO CONTROL POST DEVELOPMENT RUNOFF AND STABILIZE AREAS USING SEED MIX WITH MULCH TACKIFIER.

GENERAL NOTES:

1. MINOR CHANGES MAY BE MADE BY AN REP REPRESENTATIVE.
2. AN REP REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION OF KEY PORTIONS OF THE PROJECT.
3. THE CITY OF SILOAM SPRINGS IS RESPONSIBLE FOR ALL MAINTENANCE AND REPLACEMENT OF LANDSCAPE BUFFERS, SIGNAGE, GATES, STORMWATER DRAINAGE SYSTEM, ALL TRAILS AND ACCESS POINTS AND PARKING LOT MAINTENANCE. IN ADDITION, THE CITY IS RESPONSIBLE FOR ALL TRASH REMOVAL AND MAINTENANCE OF PORTA-POTTY FACILITIES AND MANAGEMENT OF ALL OF THESE RESOURCES DURING FLOODING CONDITIONS.
4. ANY TS, FD, WB OR OTHER STORAGE ITEMS SHOULD BE CONTAINED WITH THE APPROPRIATE BMP'S AND LOCATED AWAY FROM CONCENTRATED WATERWAYS.
5. NO WETLANDS IN THE PROJECT AREA PER CONVERSATION WITH RAUL GUTIERREZ, US EPA, DALLAS TEXAS.
6. THE CONTRACTOR SHALL LOCATE AND MARK ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION AND SHALL NOT RELY SOLELY ON THESE CONSTRUCTION PLANS FOR UTILITY LOCATIONS. CONTRACTOR MUST COMPLETE ALL UTILITY LOCATES PRIOR TO CONSTRUCTION. FOR UTILITY LOCATES CONTACT ARKANSAS ONE CALL 1-800-482-8998. DAMAGE TO ANY EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. ALL EROSION CONTROL BEST MANAGEMENT PRACTICES (BMP's) RECOMMENDED BY REP ARE FOR GUIDANCE AND SHOULD PROVIDE THE FOUNDATION FOR THE FINAL BMP'S USED ON-SITE. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE BMP'S USED, THEIR EFFECTIVENESS, AND COMPLIANCE WITH ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) STORMWATER PROGRAM NPDES GENERAL PERMIT No. ARRI50000 AND THE REGULATIONS IN PART I.B.8.B OF THAT PERMIT. THE EROSION CONTROL SUPERVISOR (ECS) SHOULD BE DESIGNATED BY THE CONTRACTOR AND WILL BE RESPONSIBLE FOR THE IMPLEMENTATION, MANAGEMENT, MAINTENANCE, AND CARE OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND THE ASSOCIATED BMP'S.



NOT FOR CONSTRUCTION  
SEE EROSION CONTROL DETAILS AND LEGEND  
(SHEET 9) FOR EXPLANATION OF BMP'S

WHITEWATER AND HABITAT IMPROVEMENTS  
ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

INSTREAM STORMWATER POLLUTION PREVENTION PLAN (STAGE I)  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS  
DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

SHEET NUMBER:

7

SHEET 7 OF 14



RECREATION ENGINEERING  
AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER | CO | 80302  
WWW.BOATERPARKS.COM



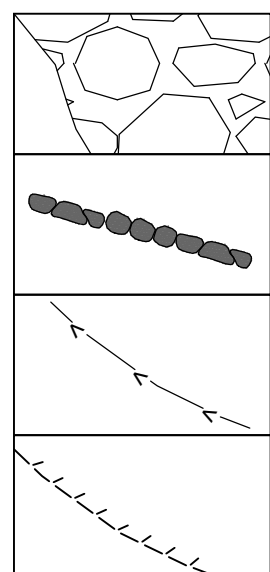
LEGEND

INSTREAM STRUCTURE

BANK STABILIZATION/  
RETAINING WALL

THALWEG AND DIRECTION  
OF FLOW

ORDINARY HIGH WATER MARK



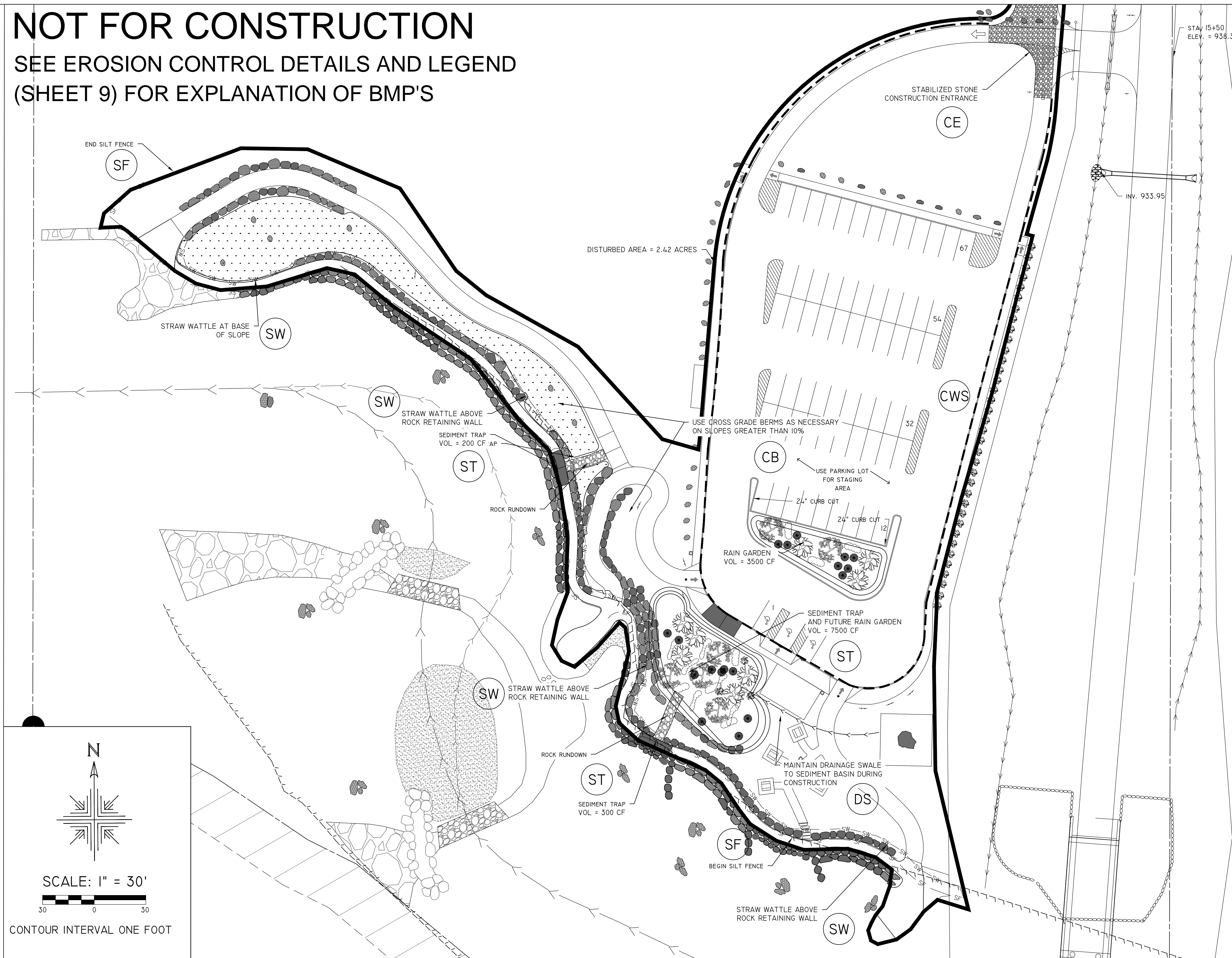
EROSION CONTROL WORK TASKS AND APPROXIMATE SEQUENCE:

1. CLEAR DOWNSLOPE SILT FENCES AND STRAW WATTLES, AS NEEDED.
2. FINALIZE SEDIMENT TRAP WITH VEGETATION IN COLLABORATION WITH ILLINOIS RIVER WATERSHED PARTNERSHIP (IRWP).
3. INSTALL ALL ROCK RETAINING WALLS AND TRAILS. WORK FROM DOWNSTREAM AND DOWNSLOPE MOST LOCATION TO UPSTREAM AND UPSLOPE LOCATIONS, OR AS DIRECTED BY CONTRACTOR.
4. INSTALL ALL PAVING FOR PICNIC TABLES AND PORTABLE TOILETS, OR AS DIRECTED BY CONTRACTOR.
5. CONSTRUCT PARKING LOT AND DRIVEWAY.
6. COMPLETE ALL LANDSCAPING.
8. ALL DISTURBED AREAS TO BE RESEEDED WITH MULCH TACKIFIER FOLLOWING UPLAND CONSTRUCTION.
9. REMOVE STABILIZED STONE CONSTRUCTION ENTRANCE.

GENERAL NOTES:

1. MINOR CHANGES MAY BE MADE BY AN REP REPRESENTATIVE.
2. AN REP REPRESENTATIVE SHALL BE PRESENT DURING CONSTRUCTION OF KEY PORTIONS OF THE PROJECT.
3. THE CITY OF SILOAM SPRINGS IS RESPONSIBLE FOR ALL MAINTENANCE AND REPLACEMENT OF LANDSCAPE BUFFERS, SIGNAGE, GATES, STORMWATER DRAINAGE SYSTEM, ALL TRAILS AND ACCESS POINTS AND PARKING LOT MAINTENANCE. IN ADDITION, THE CITY IS RESPONSIBLE FOR ALL TRASH REMOVAL AND MAINTENANCE OF PORTA-POTTY FACILITIES AND MANAGEMENT OF ALL OF THESE RESOURCES DURING FLOODING CONDITIONS.
4. ANY TS, FD, WB OR OTHER STORAGE ITEMS SHOULD BE CONTAINED WITH THE APPROPRIATE BMP'S AND LOCATED AWAY FROM CONCENTRATED WATERWAYS.
5. NO WETLANDS IN THE PROJECT AREA PER CONVERSATION WITH RAUL GUTIERREZ, US EPA, DALLAS TEXAS.
6. THE CONTRACTOR SHALL LOCATE AND MARK ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION AND SHALL NOT RELY SOLELY ON THESE CONSTRUCTION PLANS FOR UTILITY LOCATIONS. CONTRACTOR MUST COMPLETE ALL UTILITY LOCATES PRIOR TO CONSTRUCTION. FOR UTILITY LOCATES CONTACT ARKANSAS ONE CALL 1-800-482-8998. DAMAGE TO ANY EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
7. ALL EROSION CONTROL BEST MANAGEMENT PRACTICES (BMP's) RECOMMENDED BY REP ARE FOR GUIDANCE AND SHOULD PROVIDE THE FOUNDATION FOR THE FINAL BMP'S USED ON-SITE. THE CONTRACTOR IS ULTIMATELY RESPONSIBLE FOR THE BMP'S USED, THEIR EFFECTIVENESS, AND COMPLIANCE WITH ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY (ADEQ) STORMWATER PROGRAM NPDES GENERAL PERMIT No. ARRI50000 AND THE REGULATIONS IN PART I.B.8.B OF THAT PERMIT. THE EROSION CONTROL SUPERVISOR (ECS) SHOULD BE DESIGNATED BY THE CONTRACTOR AND WILL BE RESPONSIBLE FOR THE IMPLEMENTATION, MANAGEMENT, MAINTENANCE, AND CARE OF THE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AND THE ASSOCIATED BMP'S.

NOT FOR CONSTRUCTION  
SEE EROSION CONTROL DETAILS AND LEGEND  
(SHEET 9) FOR EXPLANATION OF BMP'S



WHITEWATER AND HABITAT IMPROVEMENTS  
ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

UPLAND STORMWATER POLLUTION PREVENTION PLAN (STAGE 2)  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS  
DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

SHEET NUMBER:

8

SHEET 8 OF 14



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AND PLANNING  
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BOULDER | CO | 80302  
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SEEDING SPECIFICATIONS

ALL SEEDING TO BE PER ARKANSAS 2003 STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION, SECTION 620-SEEDING. PLANT MIXES SHOWN BELOW ARE FOR REVIEW AND BIDDING ONLY. AN APPLICABLE SEED MIX TO BE SUBMITTED BY THE CONTRACTOR FOR REVIEW BY THE PROJECT OWNER AND PROJECT ENGINEER, PRIOR TO CONSTRUCTION.

THE WILDFLOWER MIX SHALL BE THE FOLLOWING SEED VARIETIES AND RATES:

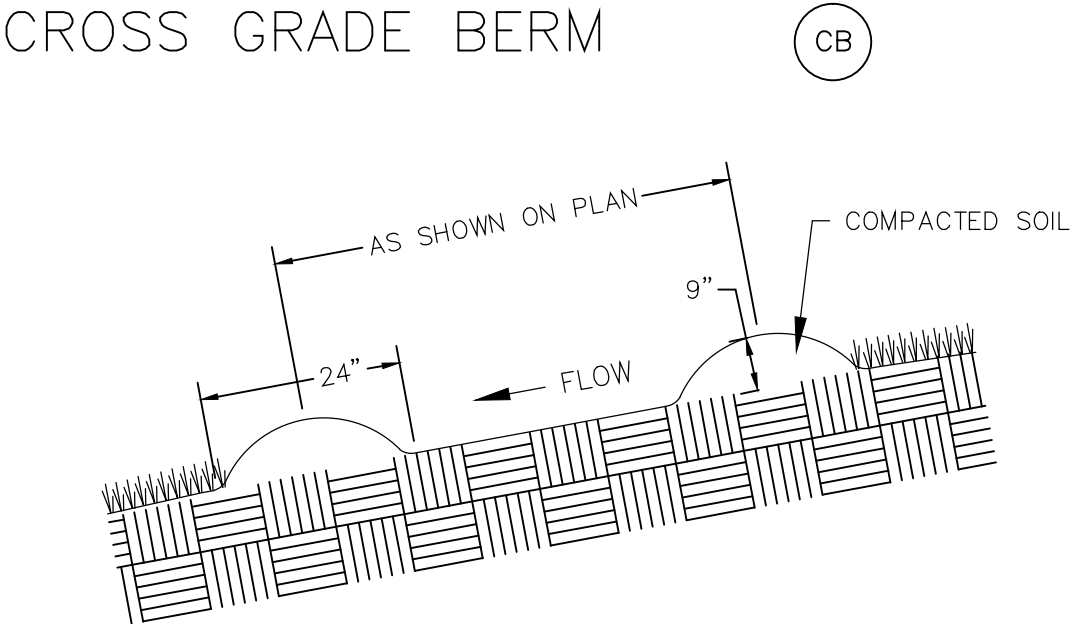
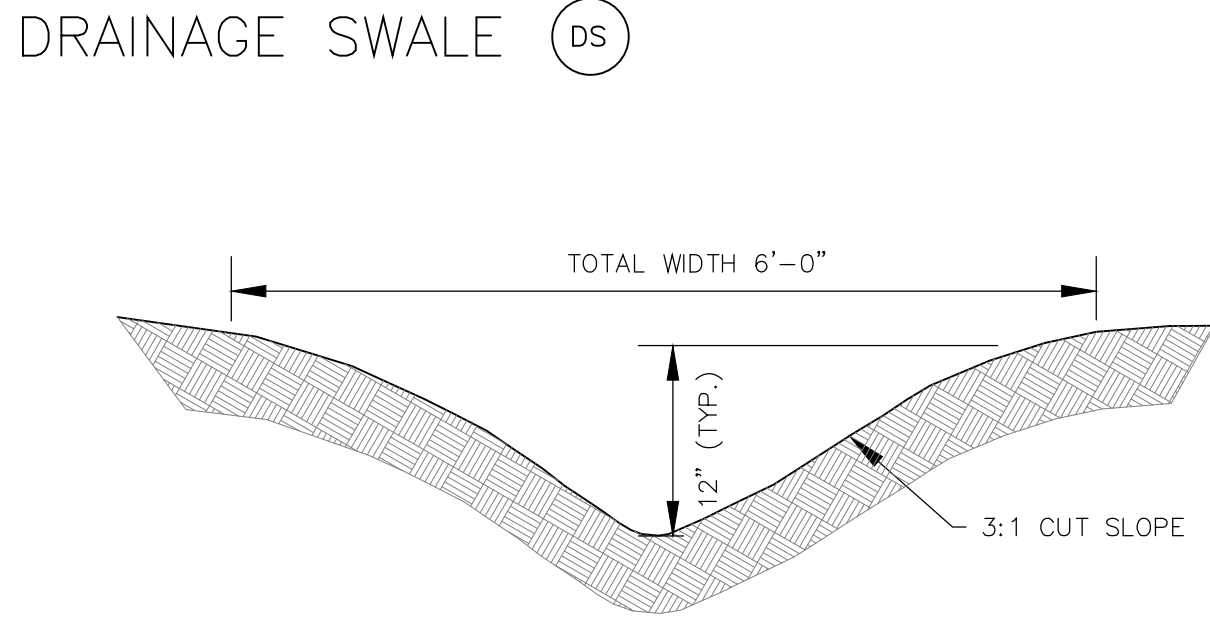
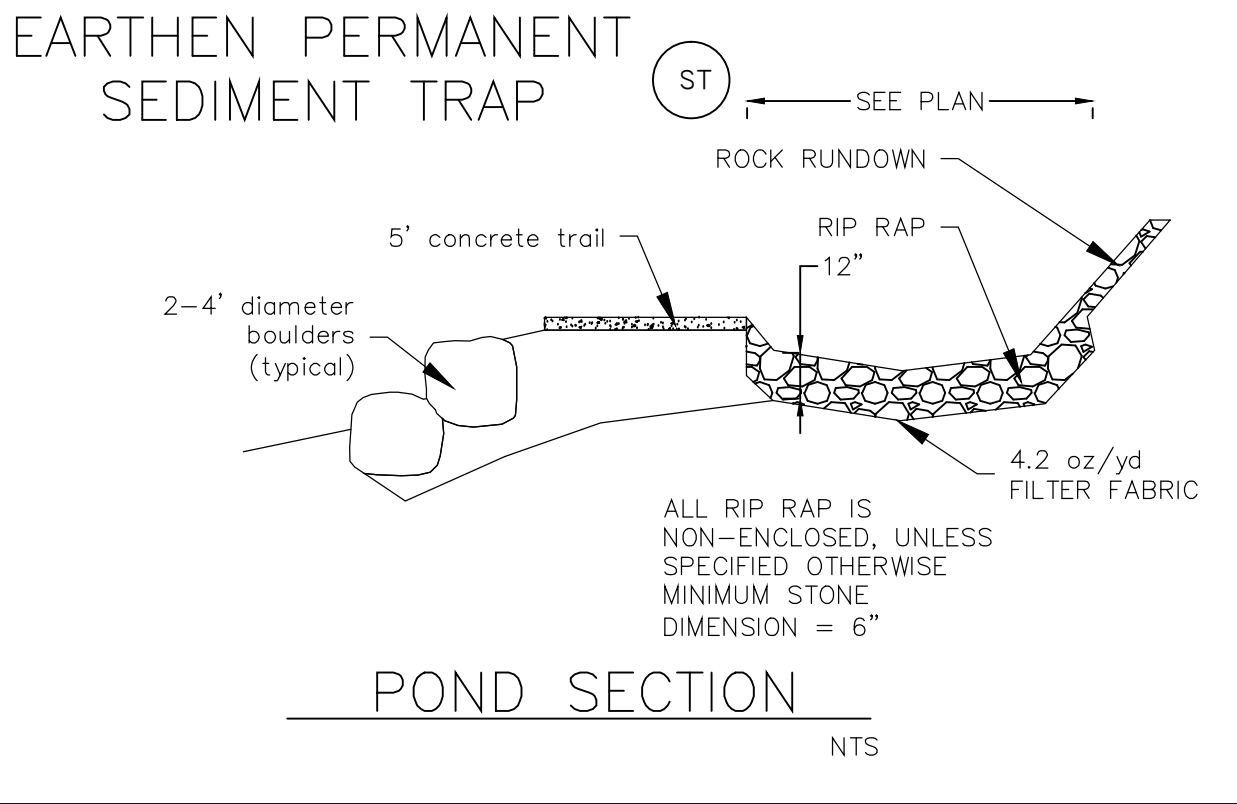
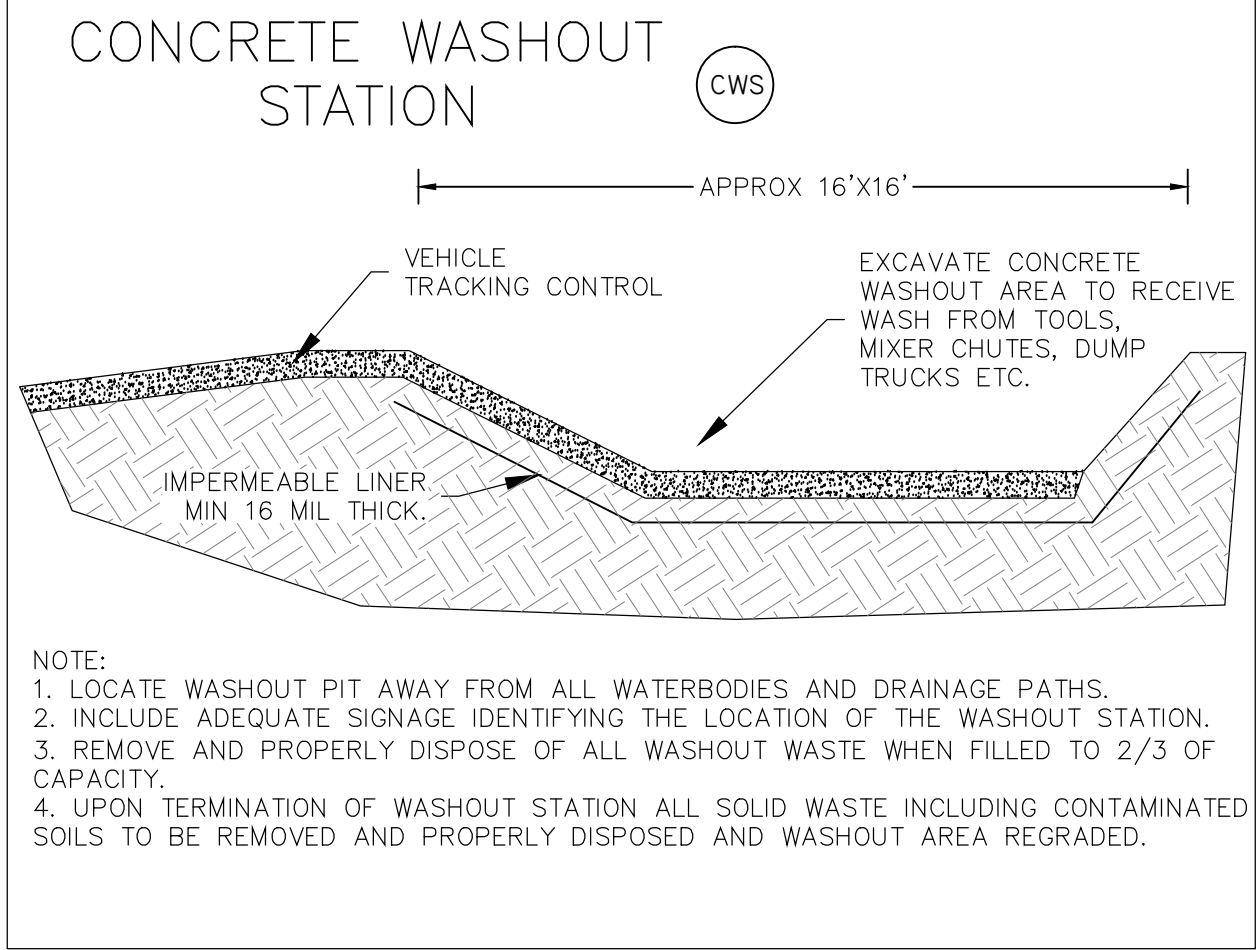
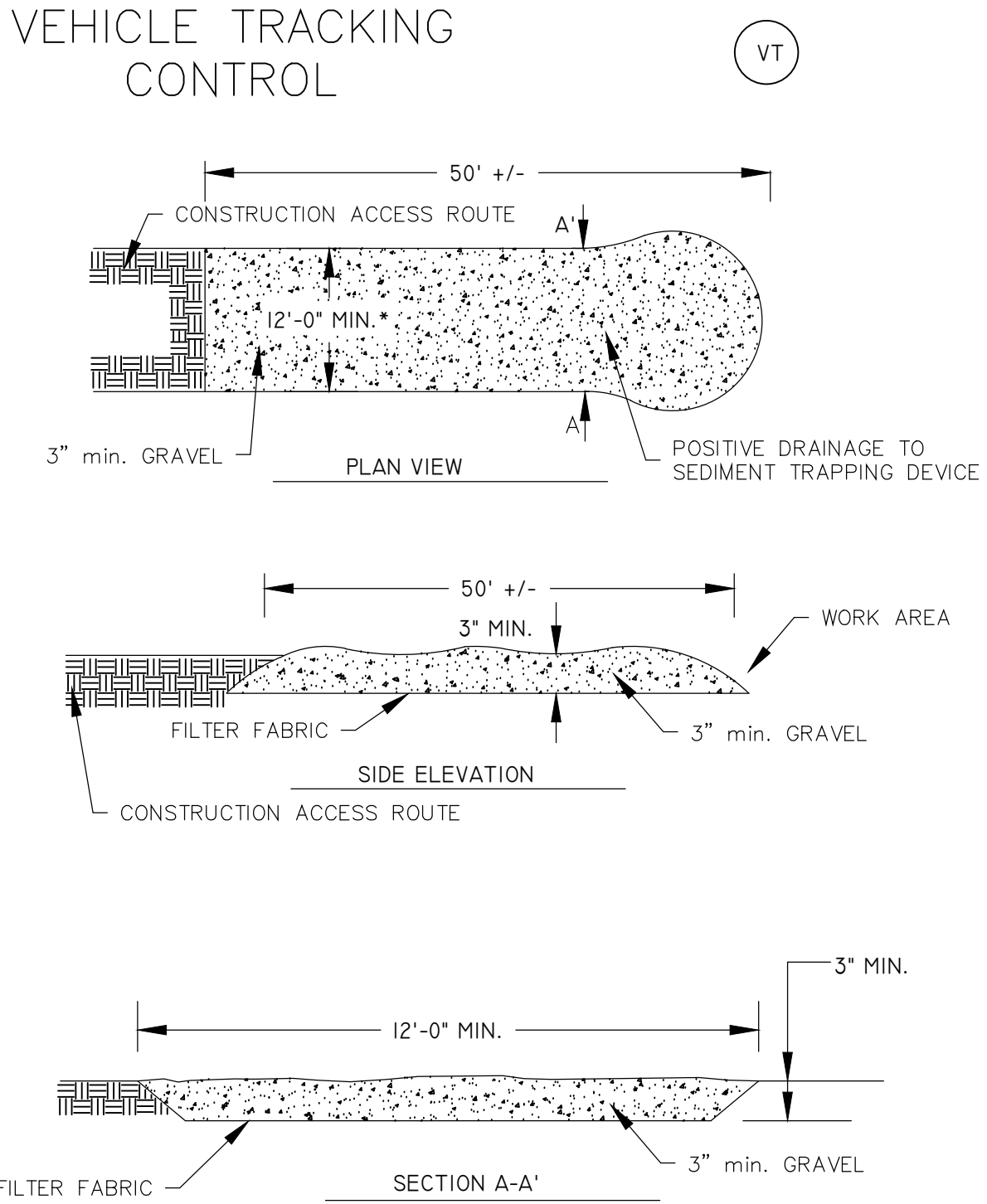
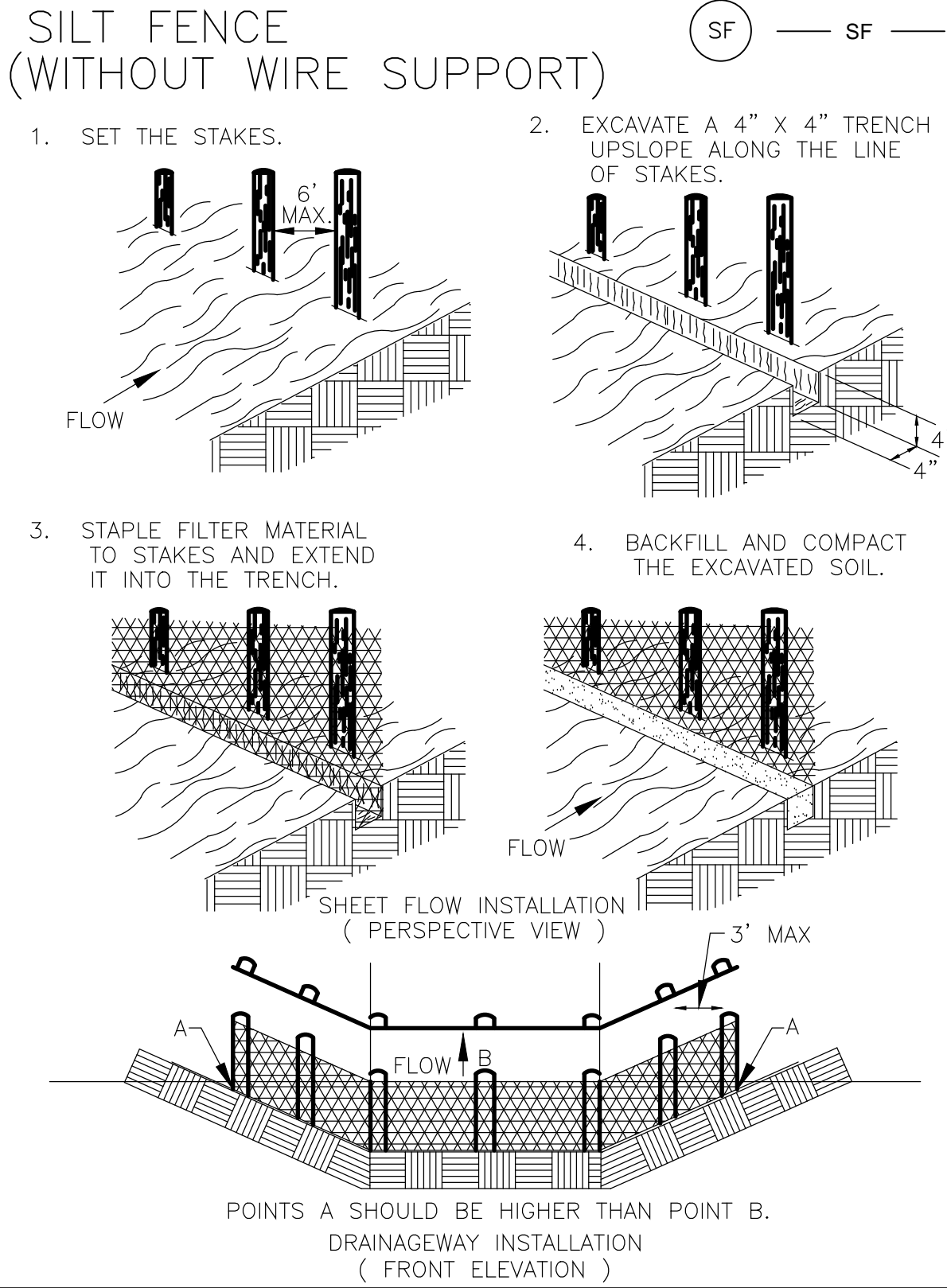
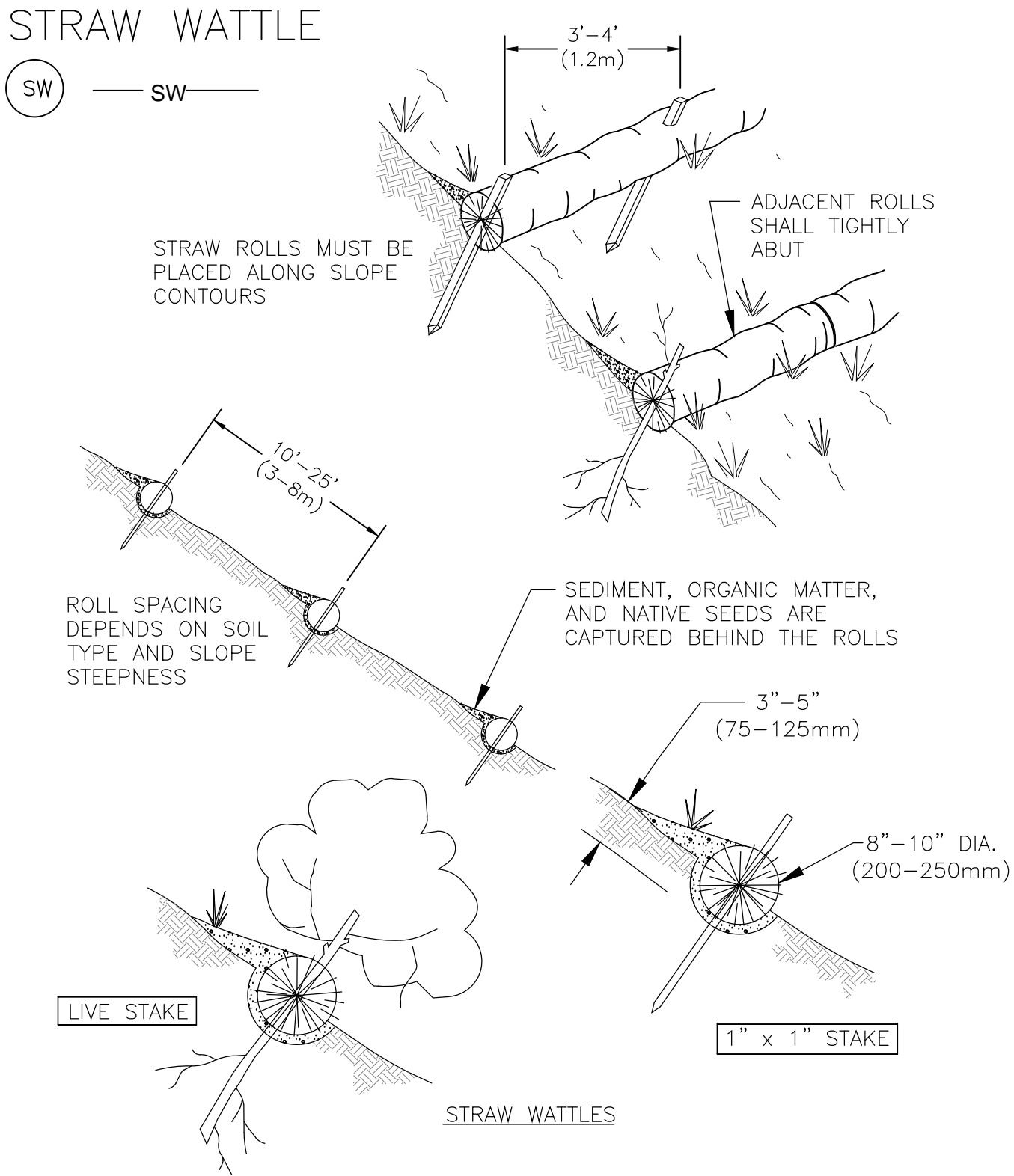
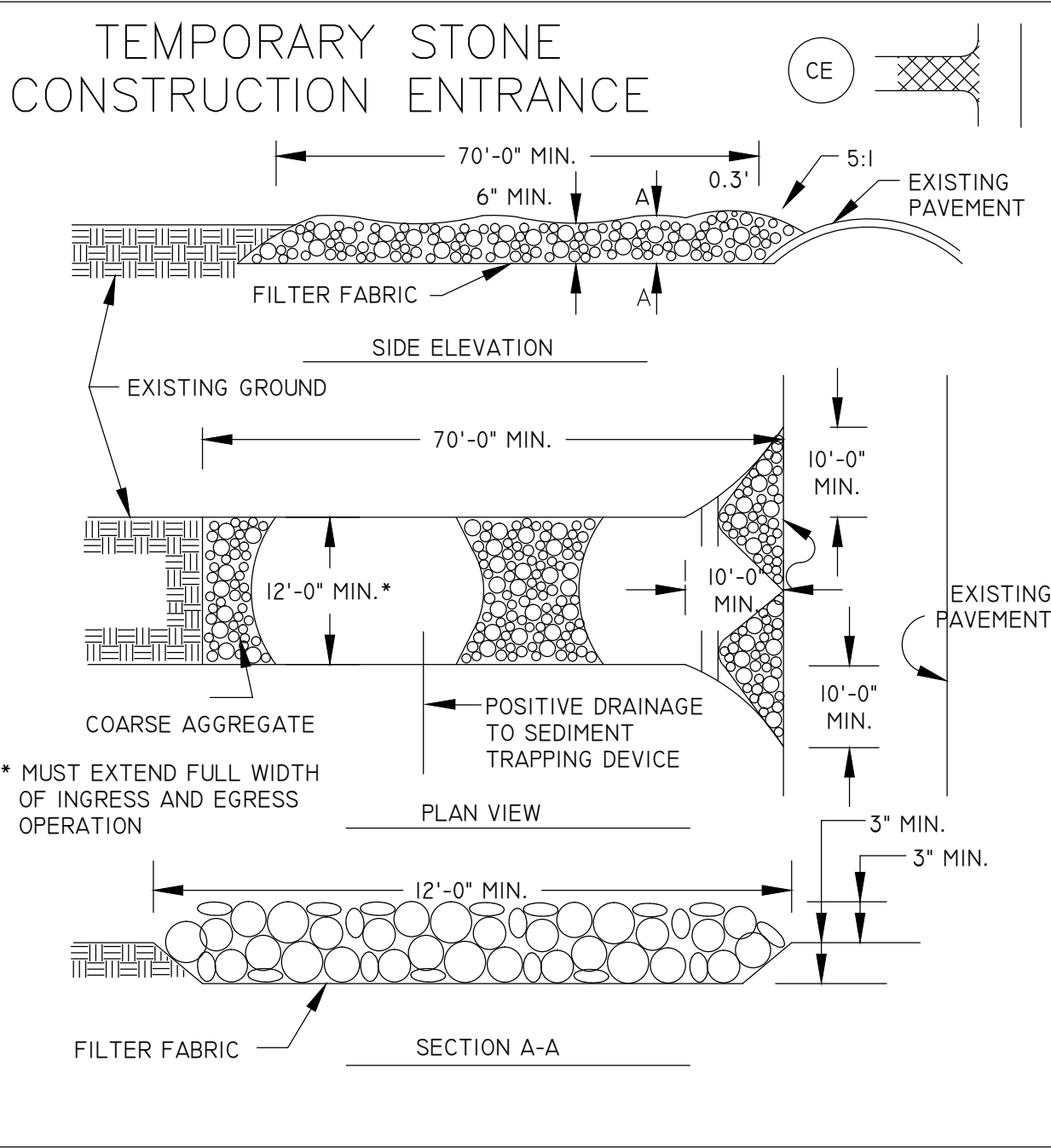
COMMON NAME	LATIN NAME	LBS./ACRE	KG/HA
BLACK-EYED SUSAN	RUDBECKIA HIRTA	0.2	0.2
OX-EYE DAISY	CHRYSANTHEMUM LEUCANTHEMUM	0.2	0.2
GAY FEAATHER	LIATRIS PYCNOSTACHYA	0.5	0.6
PURPLE CONEFLOWER	ECHINACEA PURPUREA	0.5	0.6
SHOWY PRIMROSE	OENOTHERA SPECIOSA	0.1	0.1
LANCELEAF COREOPSIS	COREOPSIS LANCEOLATA	0.5	0.6
PLAINS COREOPSIS	COREOPSIS TINCTORIA	0.5	0.6
TOTAL		2.5	2.9

WILDFLOWER SEED NOT REGULATED BY THE ARKANSAS STATE PLANT BOARD SHALL HAVE A MINIMUM OF 95% PURE SEED AND 65% GERMINATION BY WEIGHT, AND SHALL CONTAIN NO MORE THAN 1% WEED SEEDS.

ADDITIONAL CEREAL GRASS SEED MAY NOT BE APPLIED IN EXCESS OF THE RATES SHOWN BELOW. THE ENGINEER MAY PERMIT THE APPLICATION OF UP TO 15 LBS./ACRE (15 KG/HA) OF ADDITIONAL CEREAL GRASS SEED IF THE CONTRACTOR PROVIDES A WRITTEN REQUEST WHICH INCLUDES AN AGREEMENT TO MOW THE CEREAL GRASS GROWTH BEFORE THE SEED HEADS FORM AND PRIOR TO ACCEPTANCE OF THE PROJECT TO ALLOW FOR THE GERMINATION AND GROWTH OF THE OTHER GRASSES IN THE SEED MIX. ALL MOWING AND ADDITIONAL SEED WILL BE DONE AT NO COST TO THE DEPARTMENT.

DISTRICTS 3, 4, 7, 8, AND 9		
SEED VARIETY:	LBS./ACRE	KG/HA
MARCH 15 - JUNE 15		
BERMUDA GRASS (COMMON) UNHULLED	5	5
BERMUDA GRASS (COMMON) HULLED	10	10
LESPEDEZA (KOREAN)	10	10
WILDFLOWER MIX	2.5	2.9
JUNE 16 - AUGUST 31		
BERMUDA GRASS (COMMON) UNHULLED	5	5
BERMUDA GRASS (COMMON) HULLED	10	10
WILDFLOWER MIX	2.5	2.9
SEPTEMBER 1 - MARCH 14		
ANNUAL RYE GRASS OR OTHER CEREAL GRASSES	10	10
CRIMSON CLOVER (DIXIE)	10	10
BERMUDA GRASS (COMMON) UNHULLED	20	20
WILDFLOWER MIX	2.5	2.9

NOT FOR CONSTRUCTION



WHITEWATER AND HABITAT IMPROVEMENTS  
ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

EROSION CONTROL DETAILS  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS  
DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

SHEET NUMBER:

9

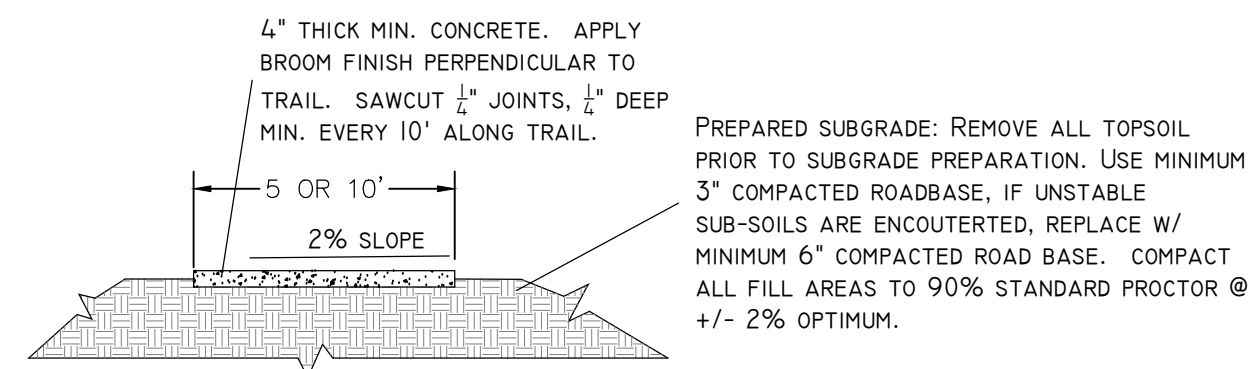
SHEET 9 OF 14



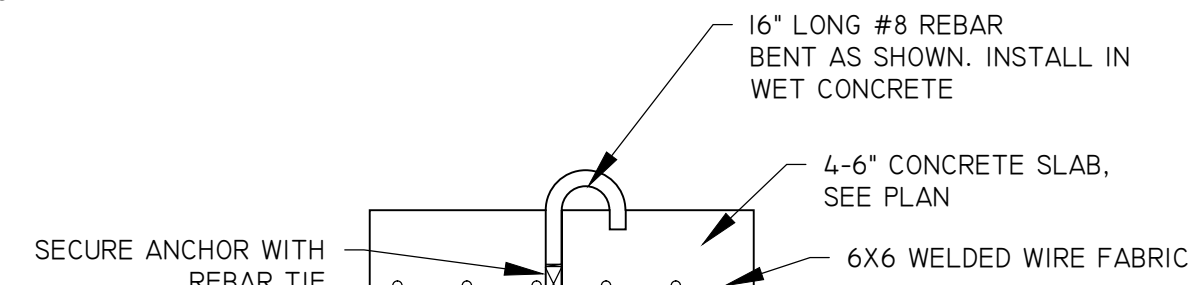
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BOULDER | CO | 80302  
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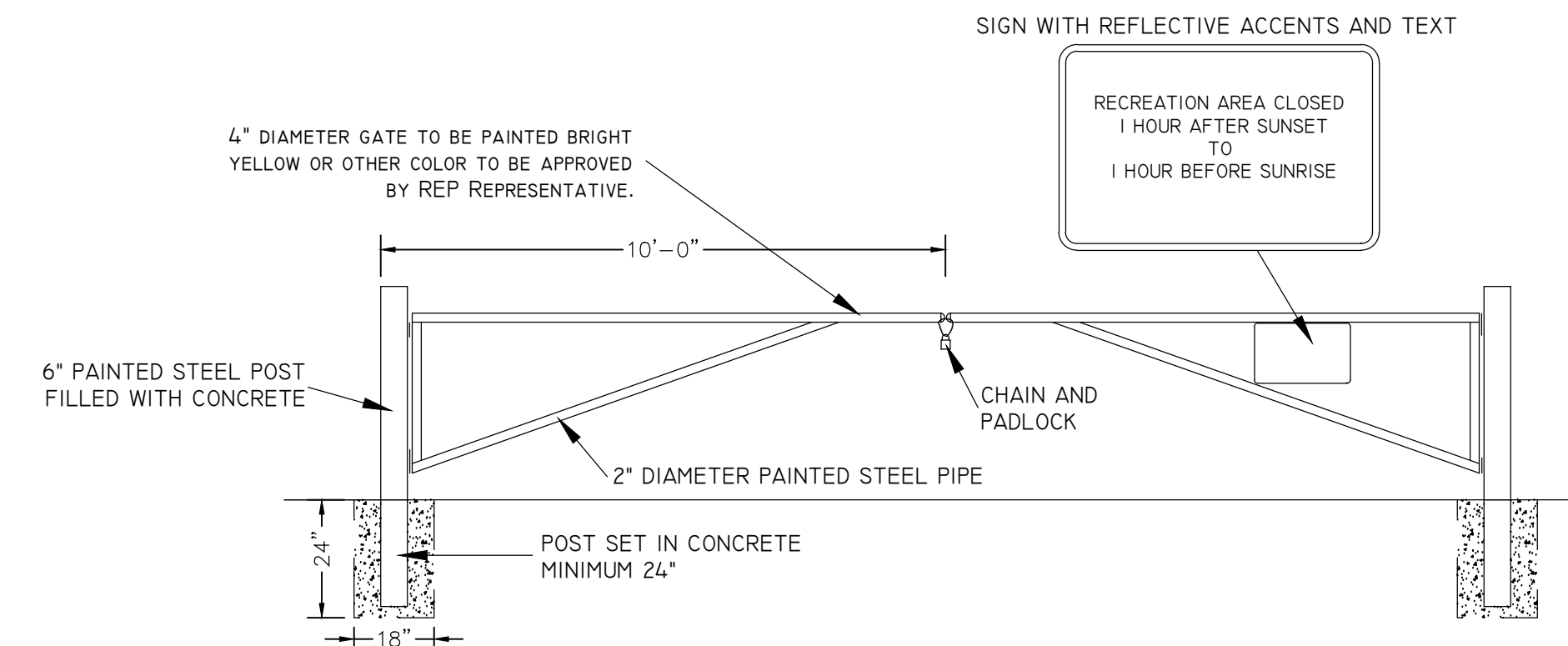


### TYPICAL CONCRETE TRAIL SECTION



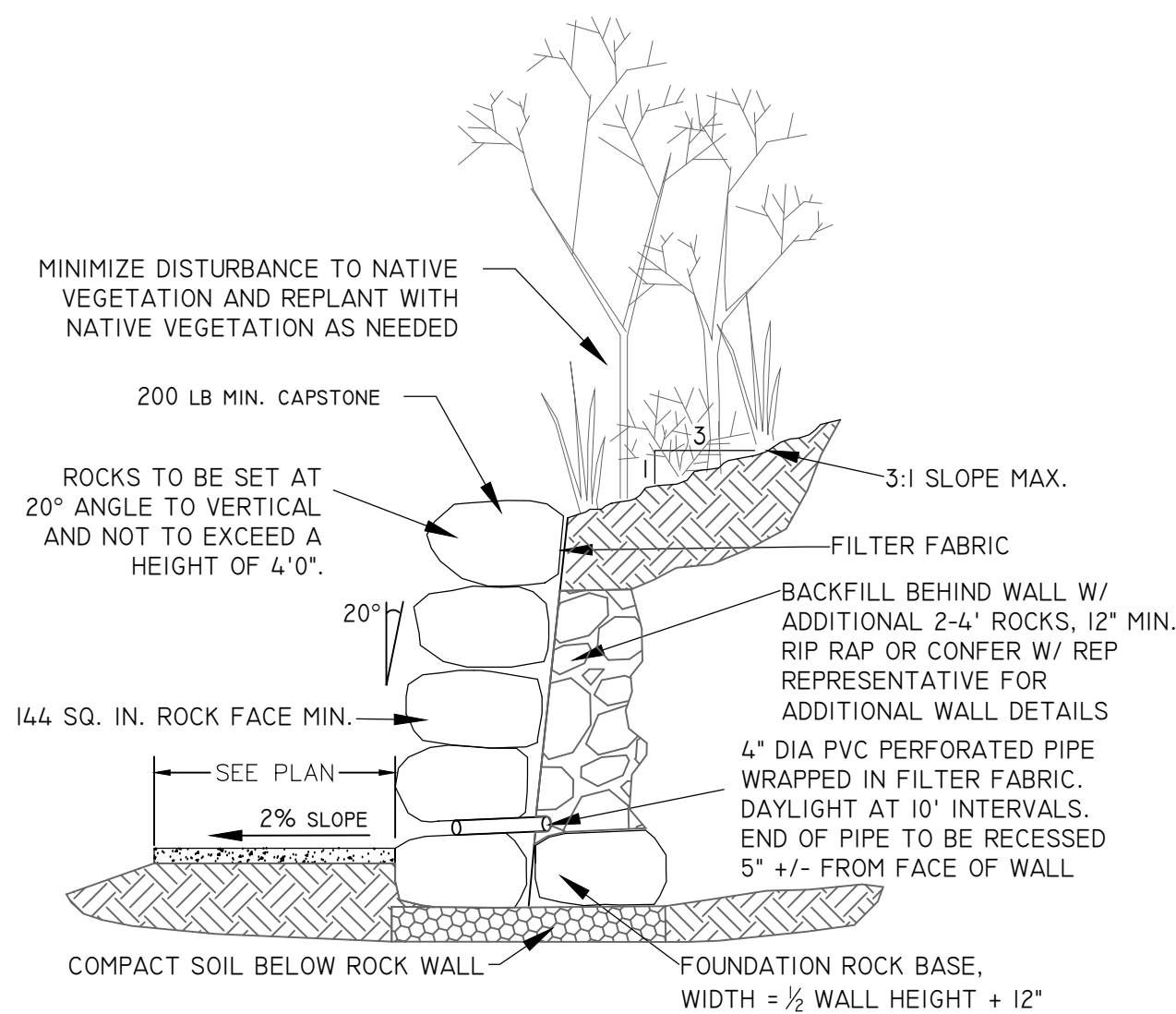
NOTE: ANCHOR TO BE INSTALLED IN SLABS UNDER PICNIC TABLES,  
TRASH RECEPTACLES AND PORTA-POTTYS .

## TYPICAL CONCRETE SLAB ANCHOR



ENTRANCE GATE

NOTE:  
CONFER WITH AN REP REPRESENTATIVE AND THE OWNER'S REPRESENTATIVE FOR  
THE FINAL SIGN TEXT PRIOR TO ORDERING OR FABRICATING ANY SIGNS.



DRY STACK ROCK WALL  
N.T.S

ALLOCATE UP TO \$2,000 FOR PLACEMENT  
OF PERMANENT CLIMBING HOLDS BY A  
PROFESSIONAL AS DIRECTED BY AN REP  
REPRESENTATIVE.

ALL DANGEROUS EDGES AND  
PROTRUSIONS TO BE SANDED AS  
DIRECTED BY AN REP  
REPRESENTATIVE.

SPECTRATURF SPECTRABOUND SAFETY  
SURFACING TILES SBIOW. THICKNESS = 3.75".  
INSTALL PER MANUFACTURER'S SPECIFICATIONS.  
[HTTP://WWW.SPECTRATURF.COM/](http://www.spectraturf.com/)

FINISHED GRADE 

ANCHOR BOULDER MIN. 24" BELOW  
FINISH GRADE AS DIRECTED BY AN  
REP REPRESENTATIVE.

ANCHOR BOULDER MIN. 24" BELOW  
FINISH GRADE AS DIRECTED BY AN  
REP REPRESENTATIVE.

D GRADE ☐

 $10^{-10}$ 

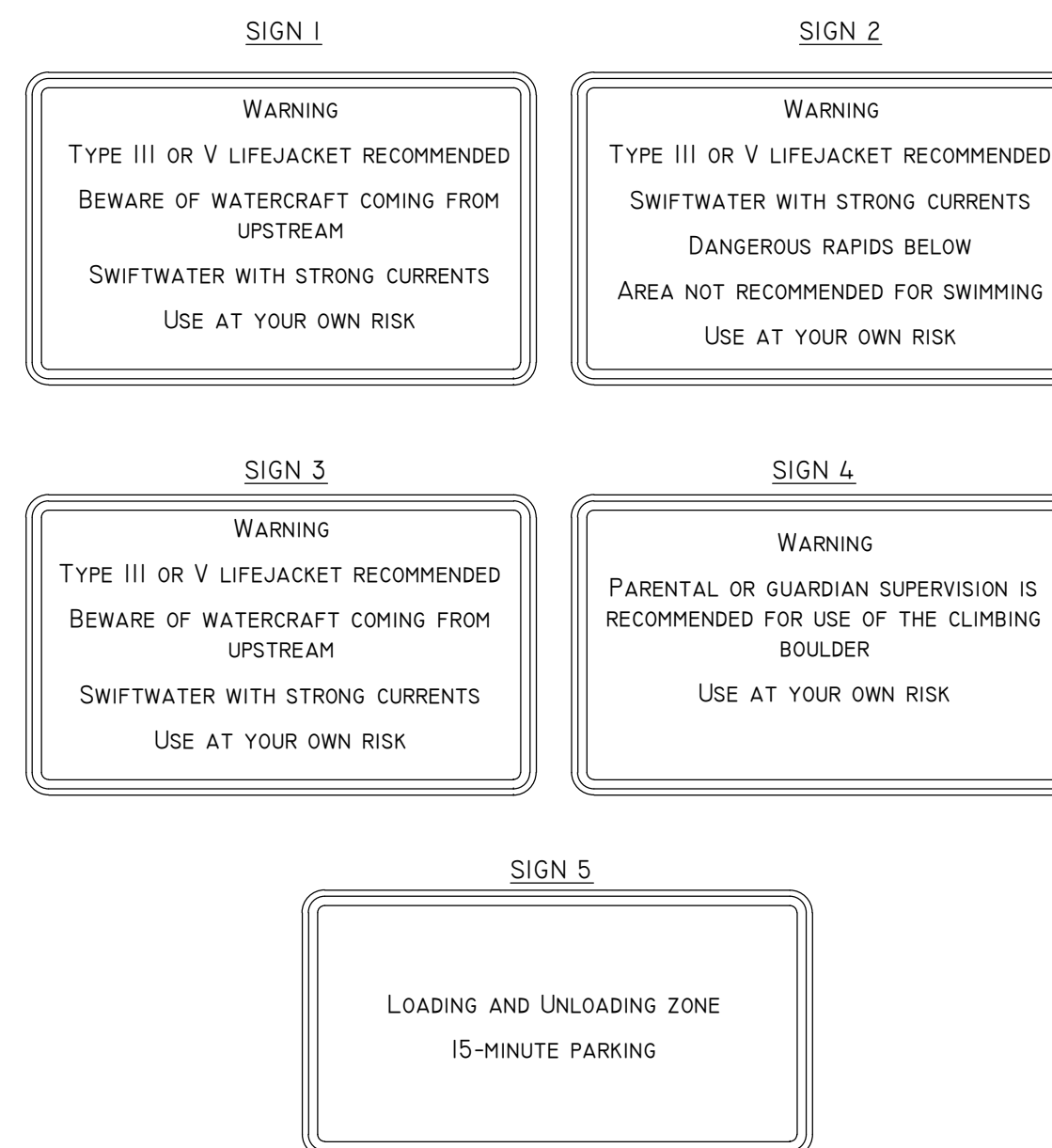
3.75"

31'-6" x 31'-6" x 10" CONCRETE SLAB W/  
#4 REBAR 12" O.C. EACH WAY. SLAB  
SLOPES 1% AWAY FROM BOULDER IN ALL  
DIRECTIONS

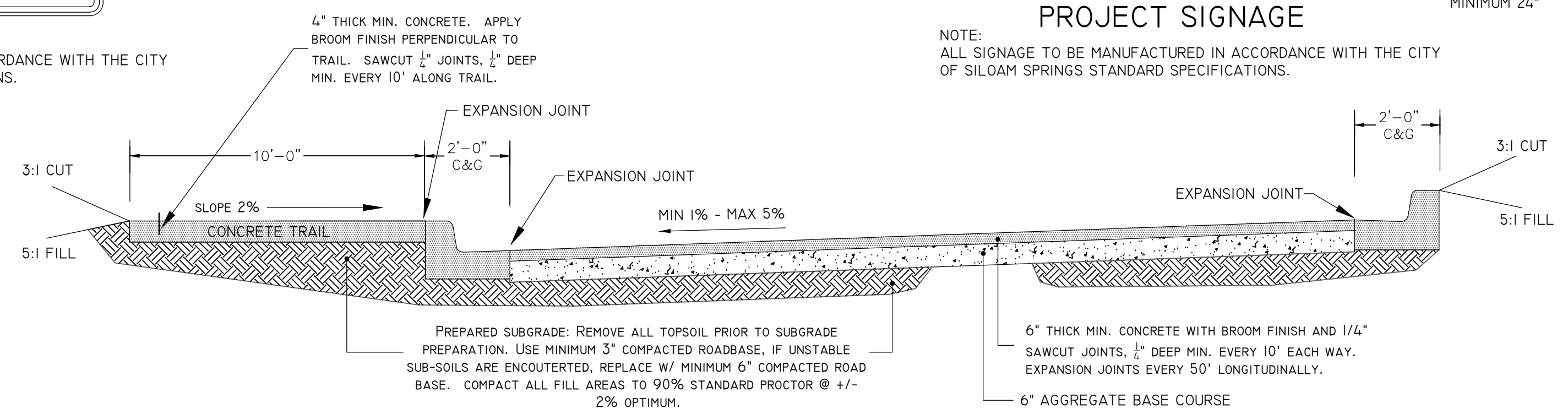
31'-6"

FILTER FABRIC

CLIMBING BOUDER W/ CONCRETE FOUNDATION  
N.T.S



NOTE:  
ALL SIGNAGE TO BE MANUFACTURED IN ACCORDANCE WITH THE CITY  
OF SILOAM SPRINGS STANDARD SPECIFICATIONS.



TYPICAL PARKING LOT SECTION  
N.T.S



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## WHITEWATER AND HABITAT IMPROVEMENTS

ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

UPLAND DETAILS  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS
DRAFTED: AR
CHECKED: GL, SS
PLOT DATE: MAY 31, 2013
REVISIONS:

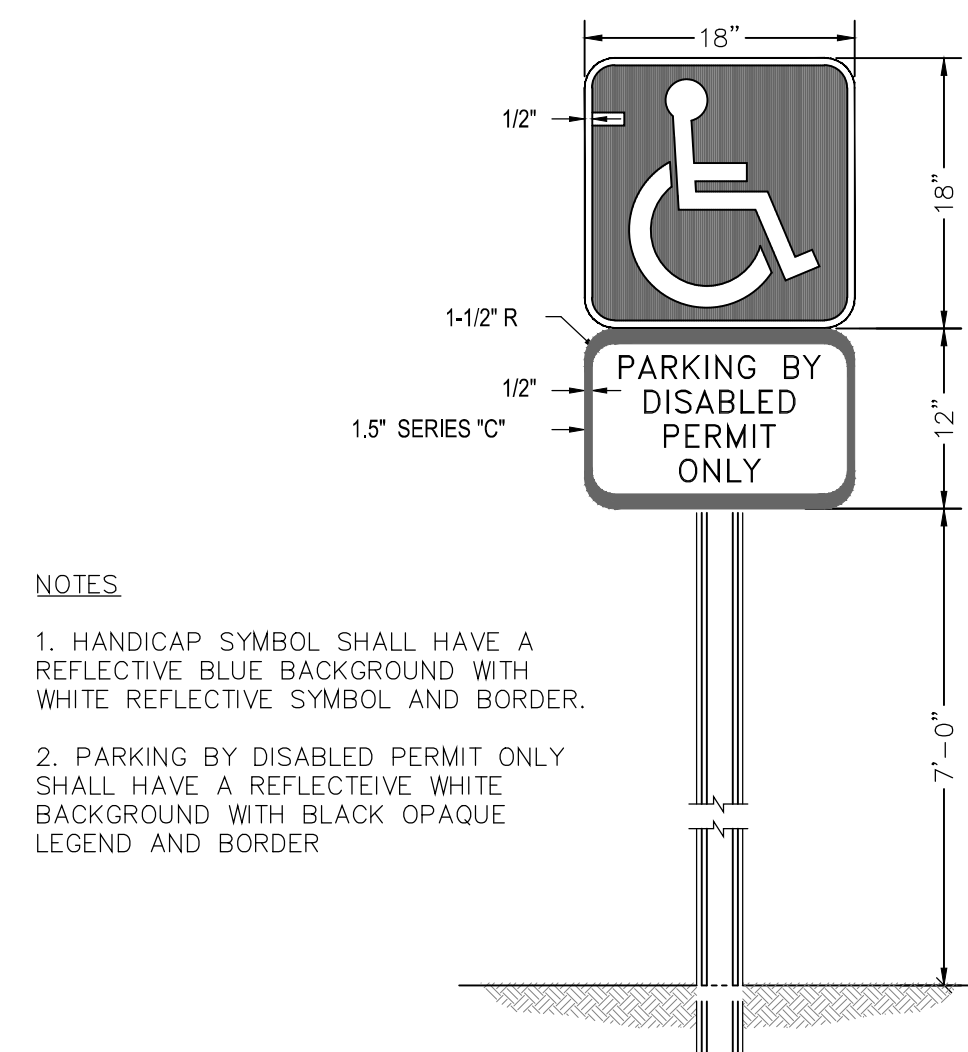
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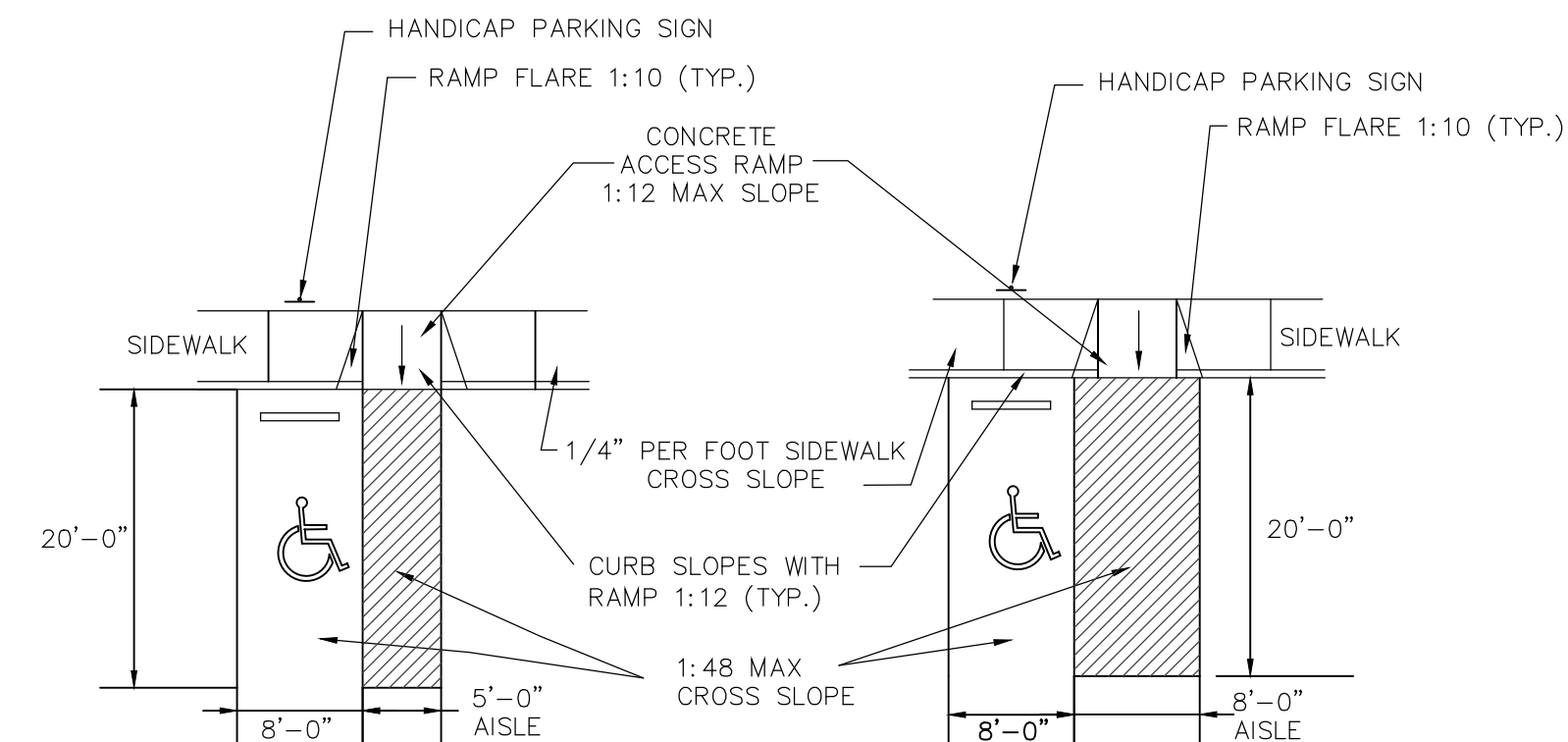
SHEET 10 OF 14



NOT FOR CONSTRUCTION

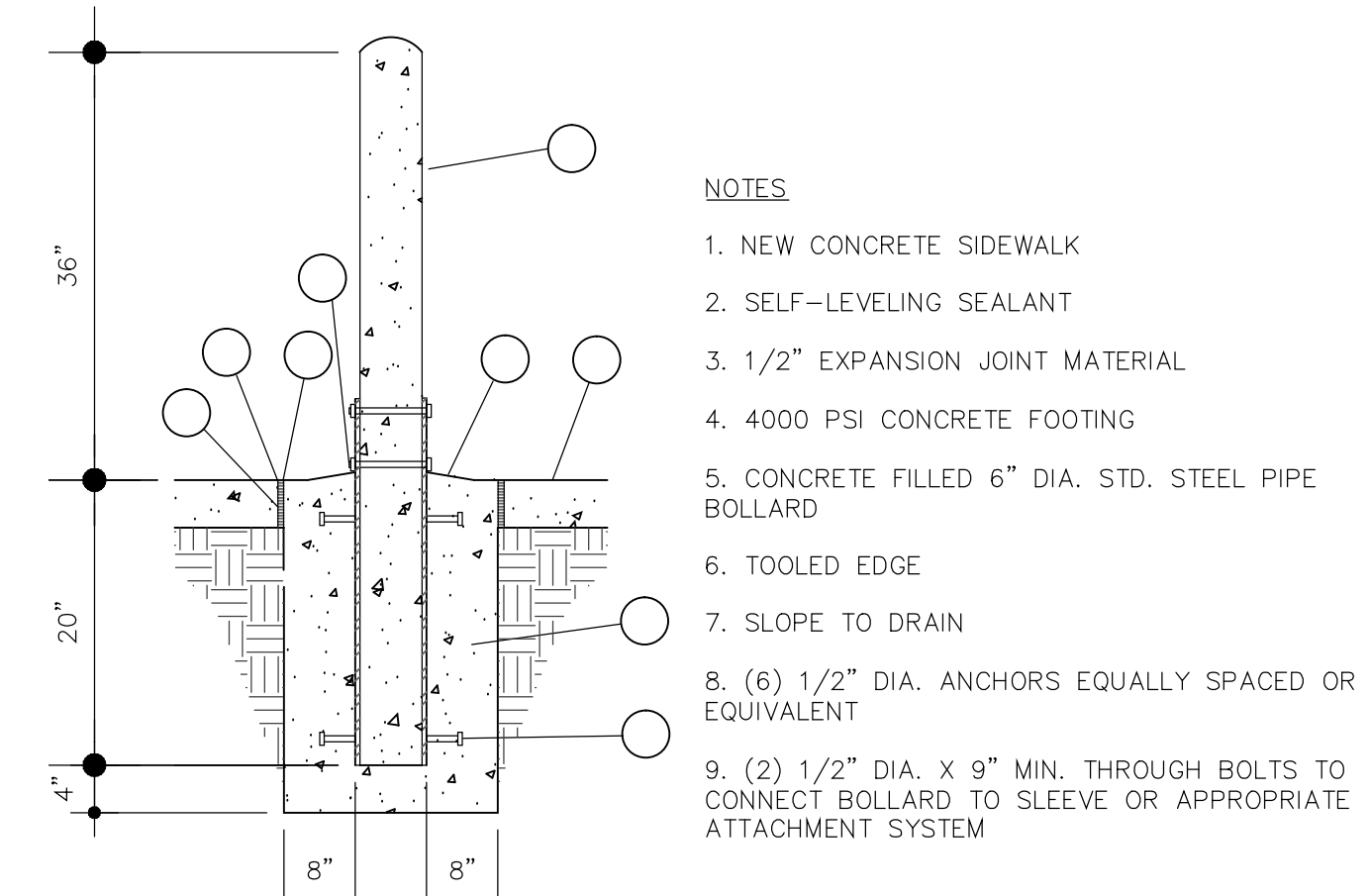


SIGNAGE  
HANDICAP PARKING

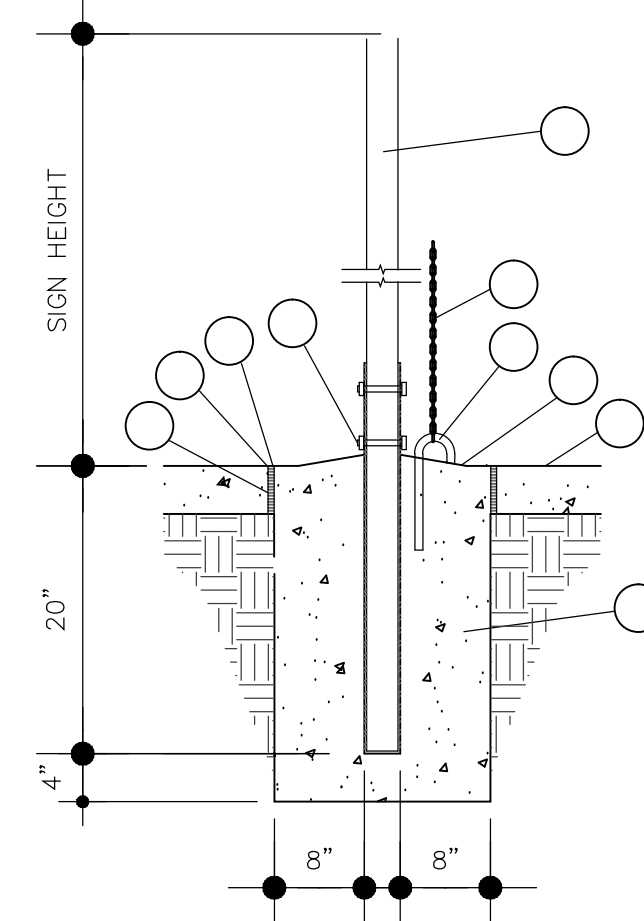


STANDARD  
HANDICAP PARKING

VAN ACCESSIBLE  
HANDICAP PARKING  
NOT TO SCALE

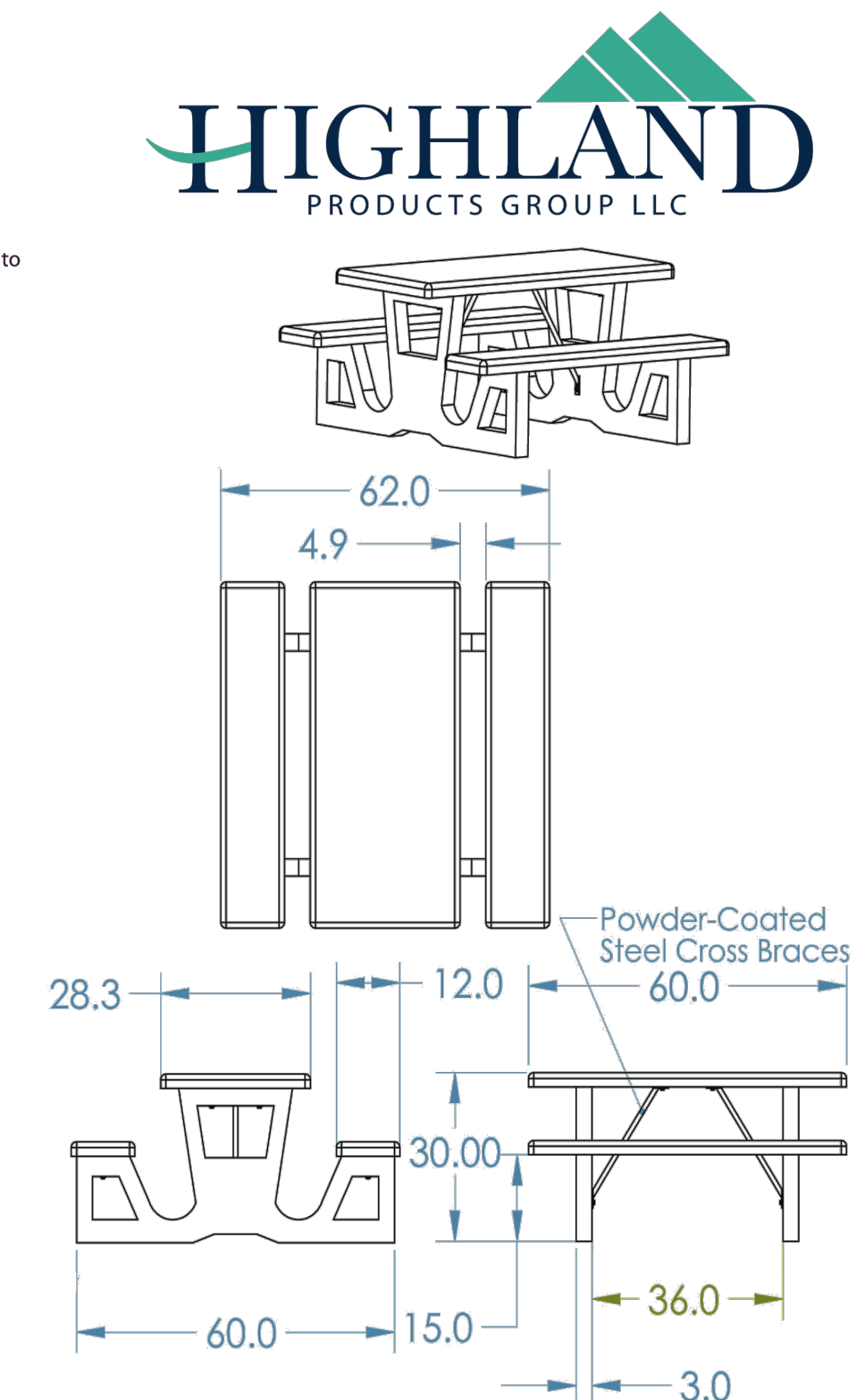


REMOVABLE PAINTED STEEL BOLLARD



## BREAKAWAY SIGN POST

- NOTES
1. NEW CONCRETE SIDEWALK OR OTHER
  2. SELF-LEVELING SEALANT
  3. 1/2" EXPANSION JOINT MATERIAL
  4. 4000 PSI CONCRETE FOOTING
  5. SIGN POST PER CITY OF SILOAM SPECIFICATIONS
  6. TOOLED EDGE
  7. SLOPE TO DRAIN
  8. (2) 1/2" DIA. x 3" THROUGH BOLTS TO CONNECT SIGN TO SLEEVE
  9. 16" LONG #8 REBAR BENT AS SHOWN. INSTALL IN WET CONCRETE
  10. 1/2" GALVANIZED STEEL CHAIN CONNECTING ANCHOR TO SIGN. INCLUDE SWIVELS BOTH ENDS.



### TYPICAL CONCRETE PICNIC TABLE



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## WHITEWATER AND HABITAT IMPROVEMENTS

ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

UPLAND DETAILS  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS
DRAFTED: AR
CHECKED: GL, SS
PLOT DATE: MAY 31, 2013
REVISIONS:

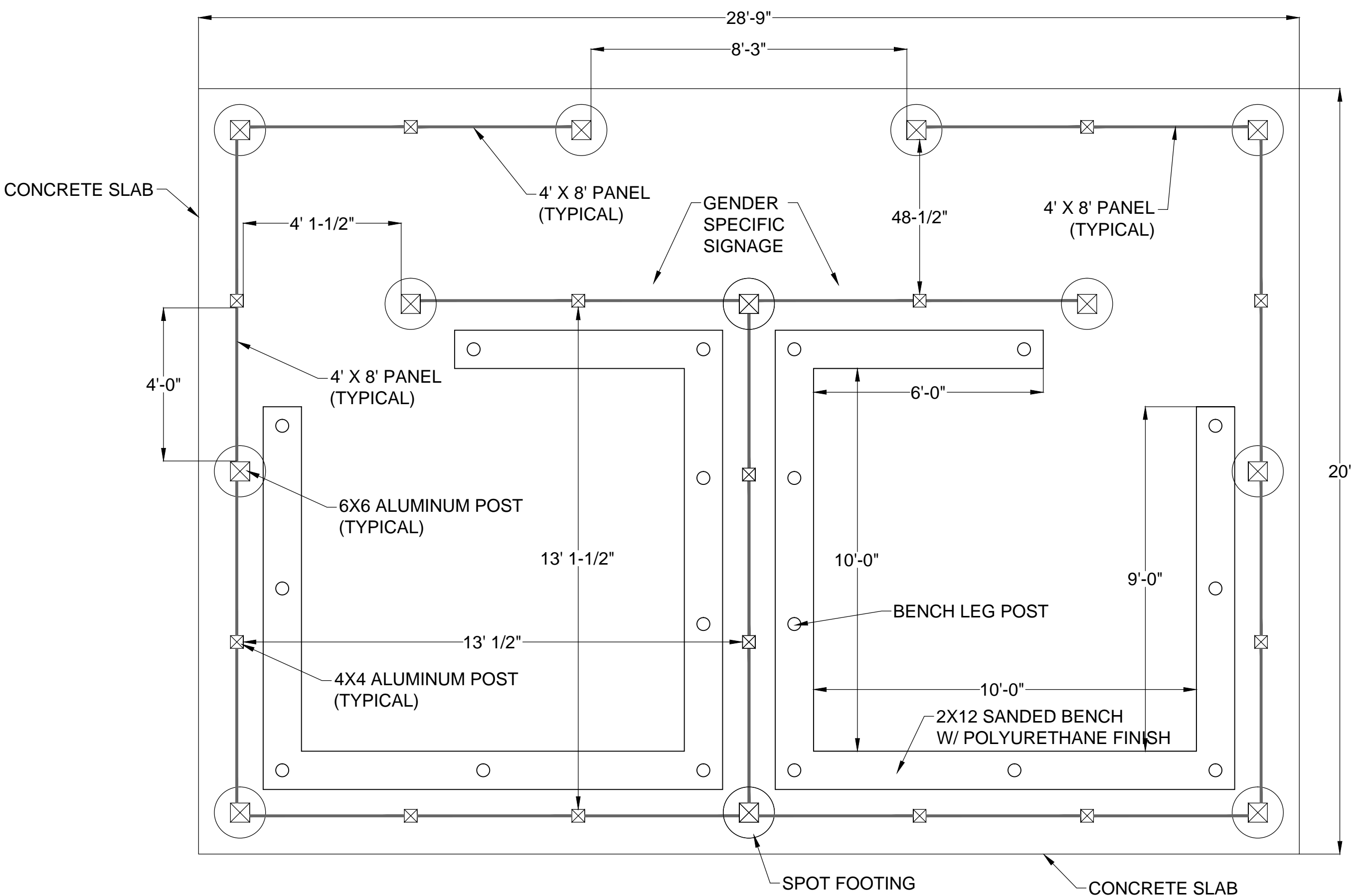
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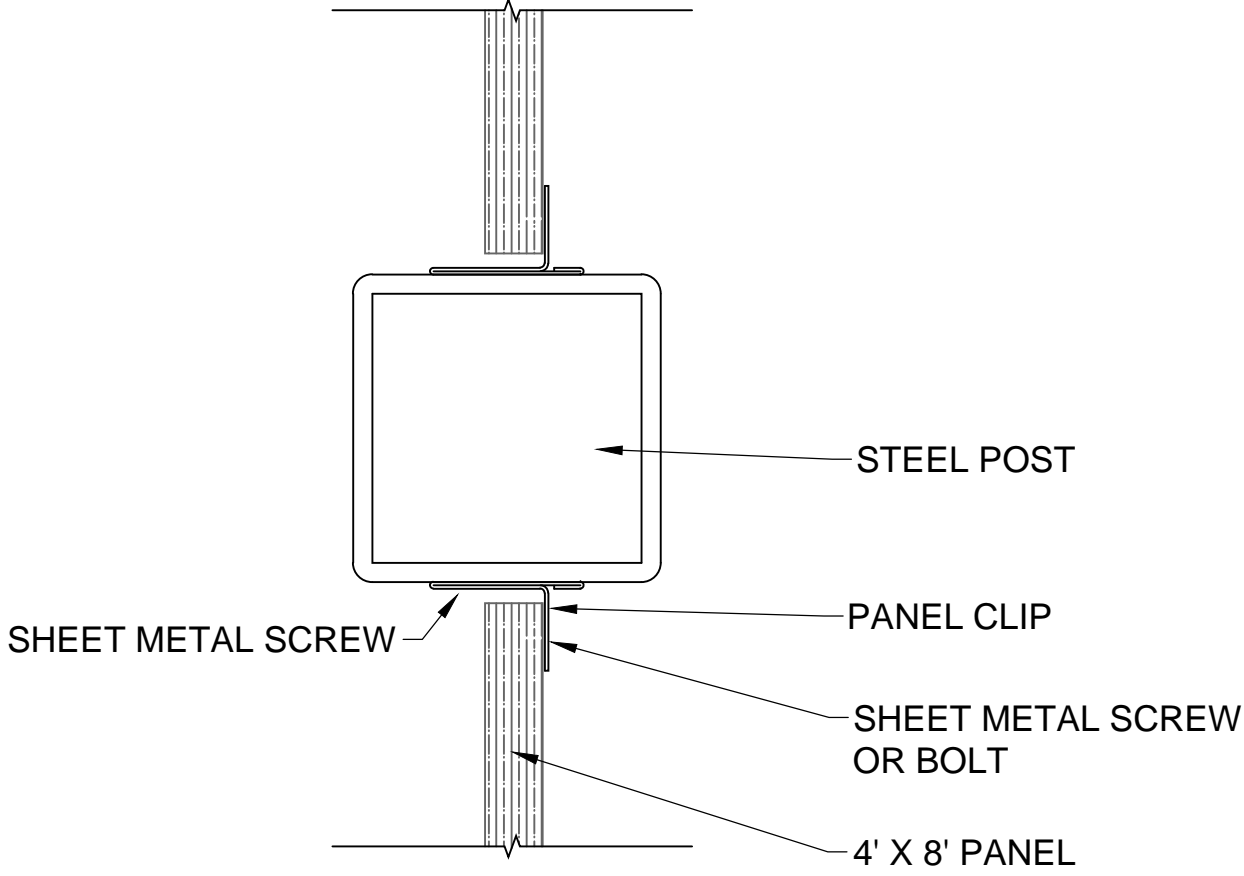
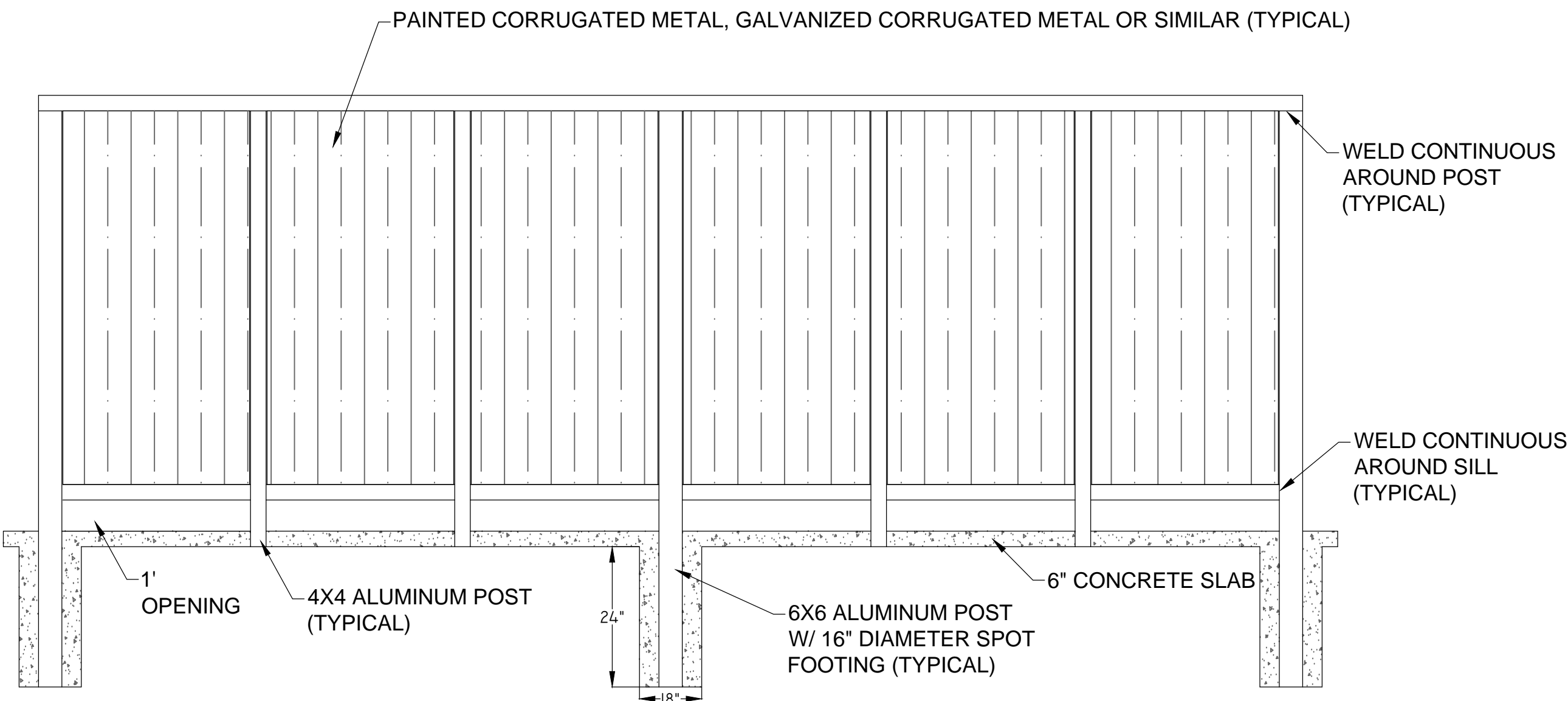
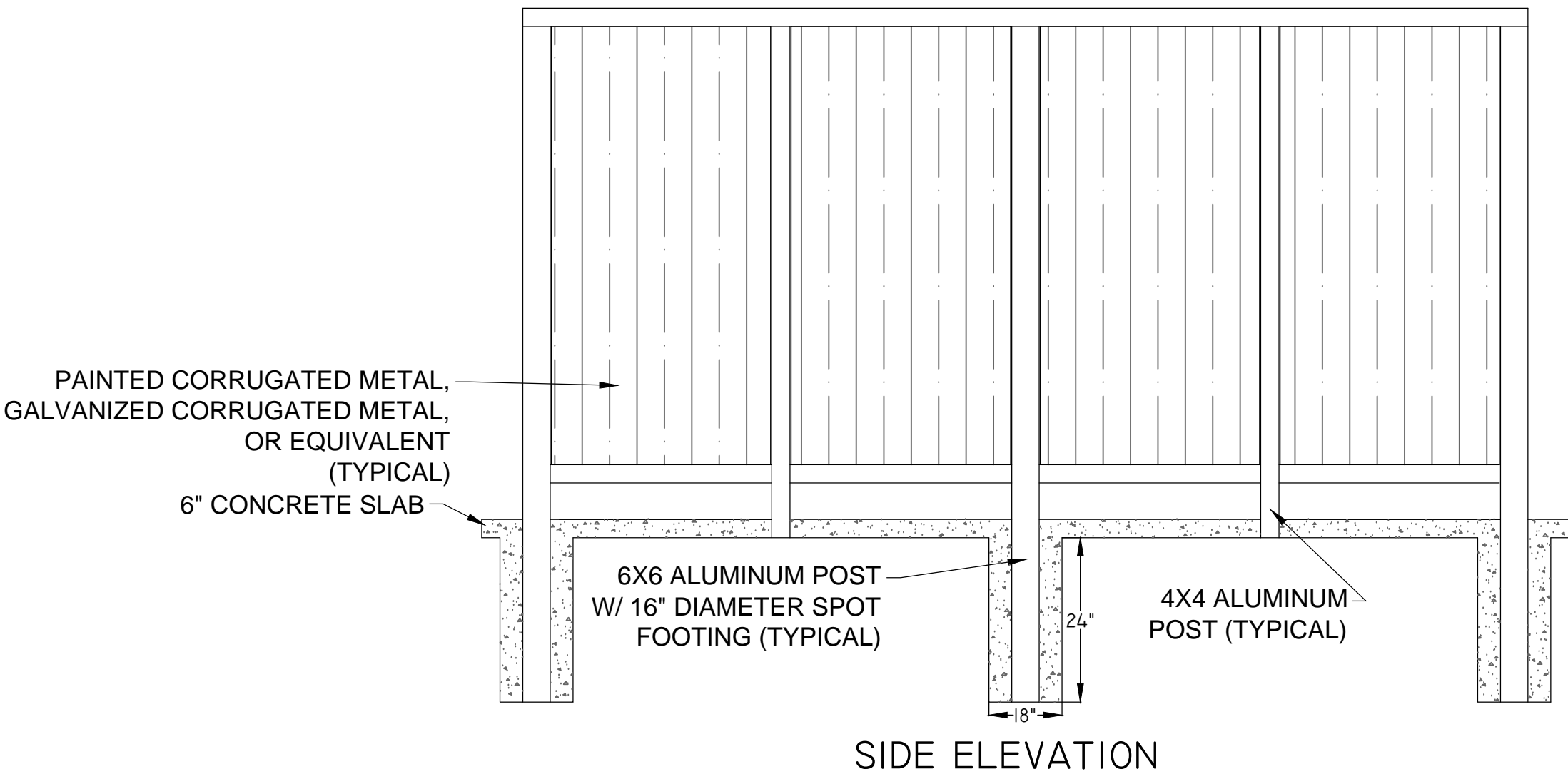
SHEET 11 OF 14



NOT FOR CONSTRUCTION



NOTE:  
APPLICANT TO NOTE THAT A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT SHALL DEVELOP OR REVIEW STRUCTURAL DESIGN, SPECIFICATIONS AND PLANS FOR THE CONSTRUCTION AND SHALL CERTIFY THAT THE DESIGN AND METHODS OF CONSTRUCTION ARE IN ACCORDANCE WITH ACCEPTED STANDARDS OF PRACTICE AS OUTLINED IN THIS SUBSECTION. PROVIDE RELEVANT DOCUMENTATION.



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# WHITEWATER AND HABITAT IMPROVEMENTS

ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

CHANGING STRUCTURE DETAILS  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

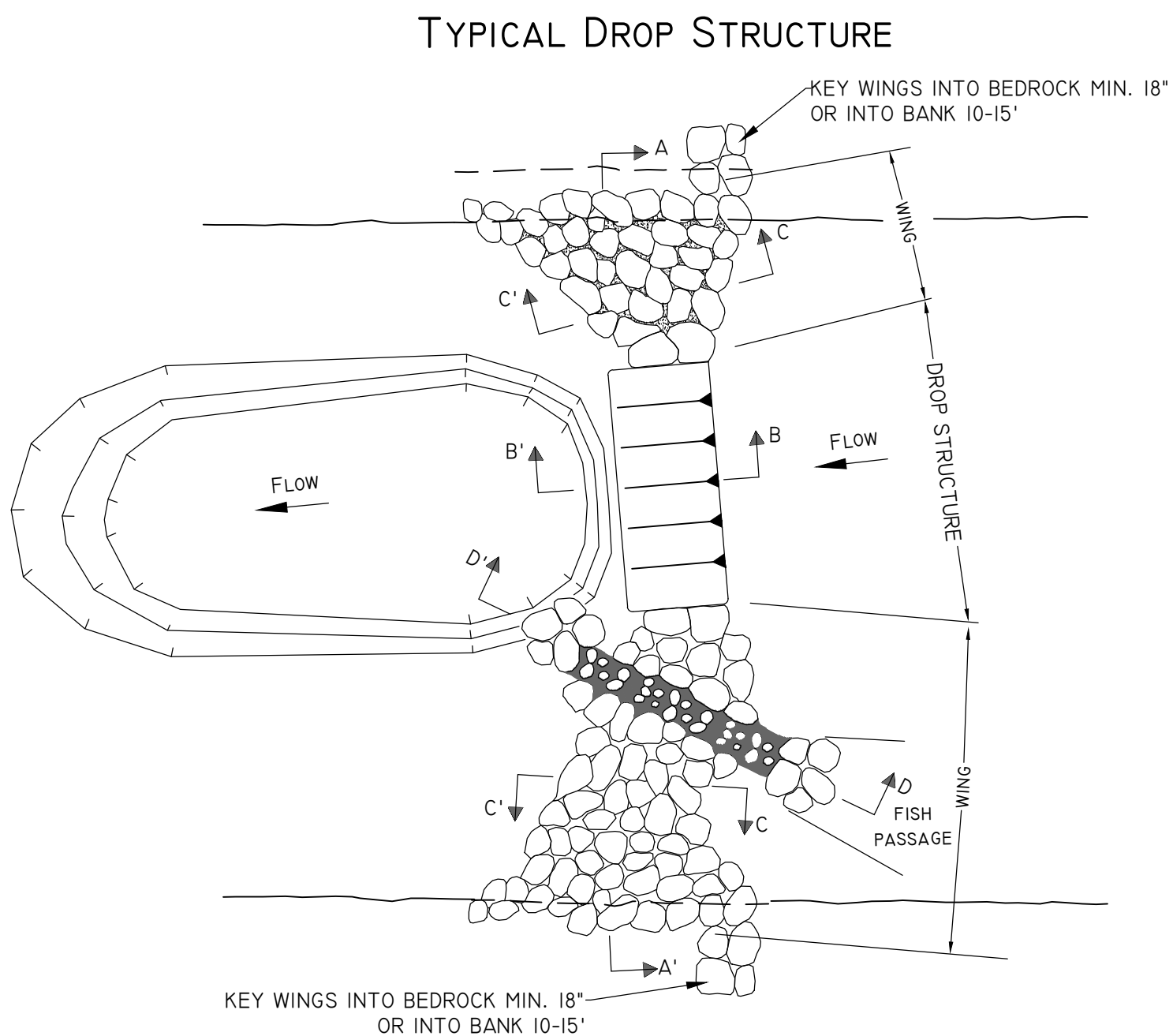
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DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

SHEET NUMBER:

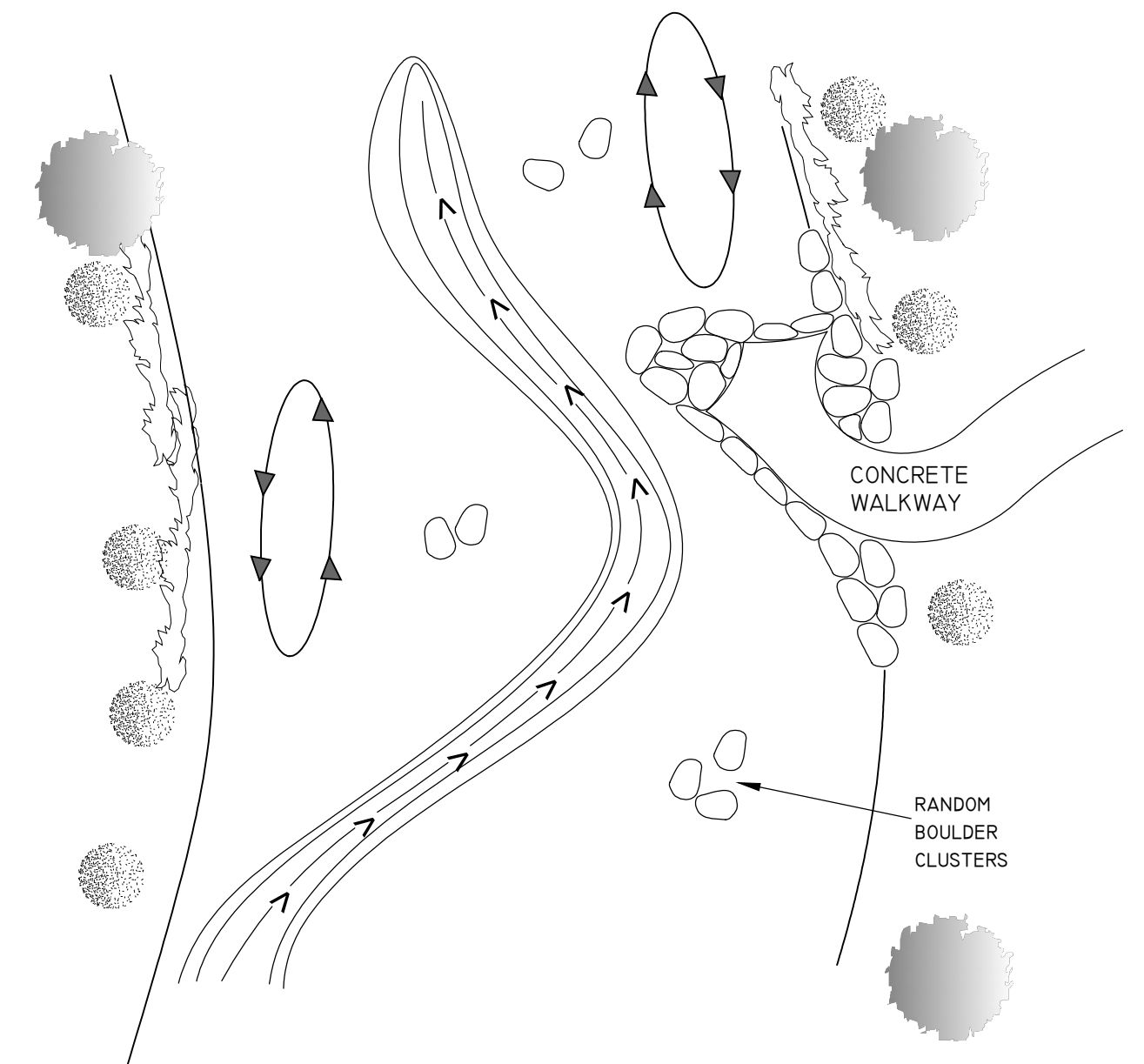
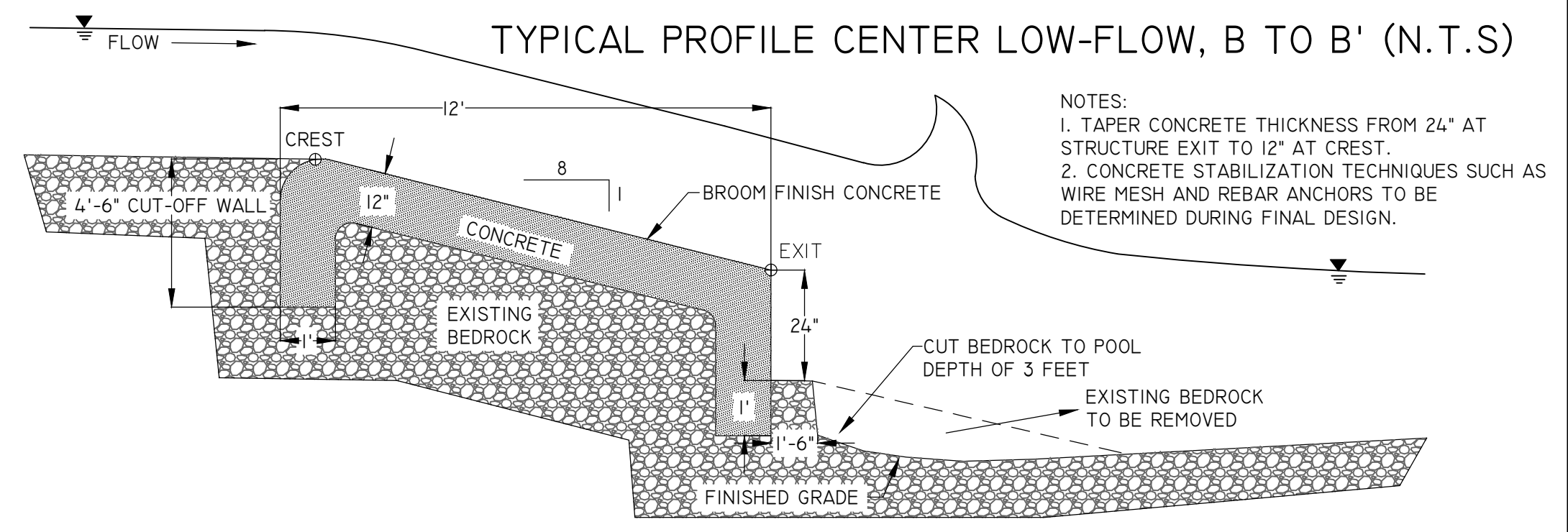
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SHEET 12 OF 14

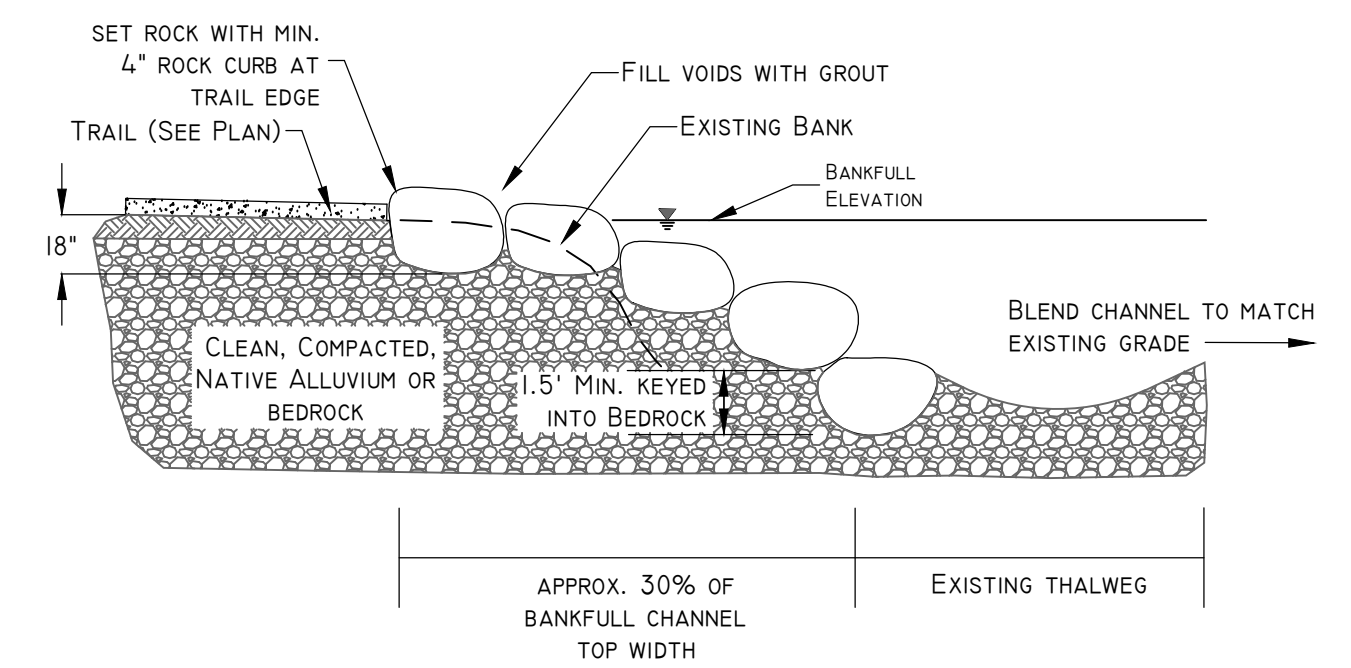
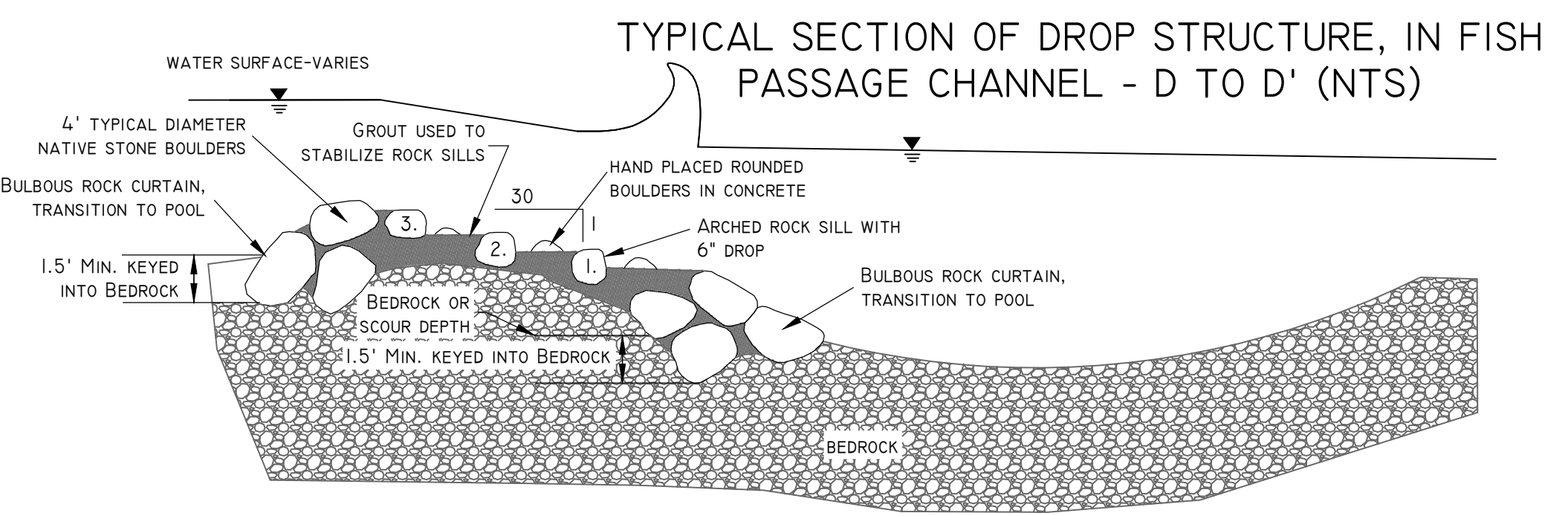
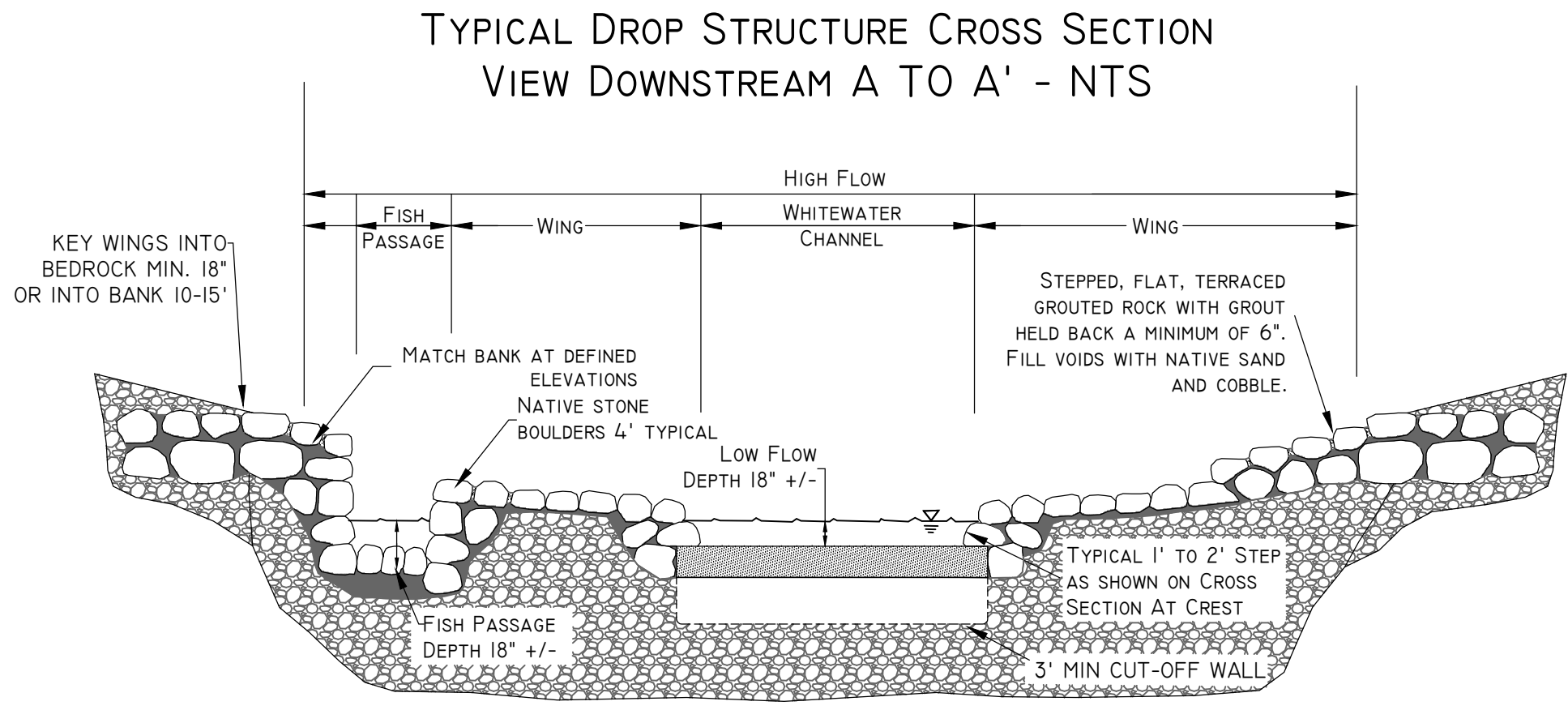




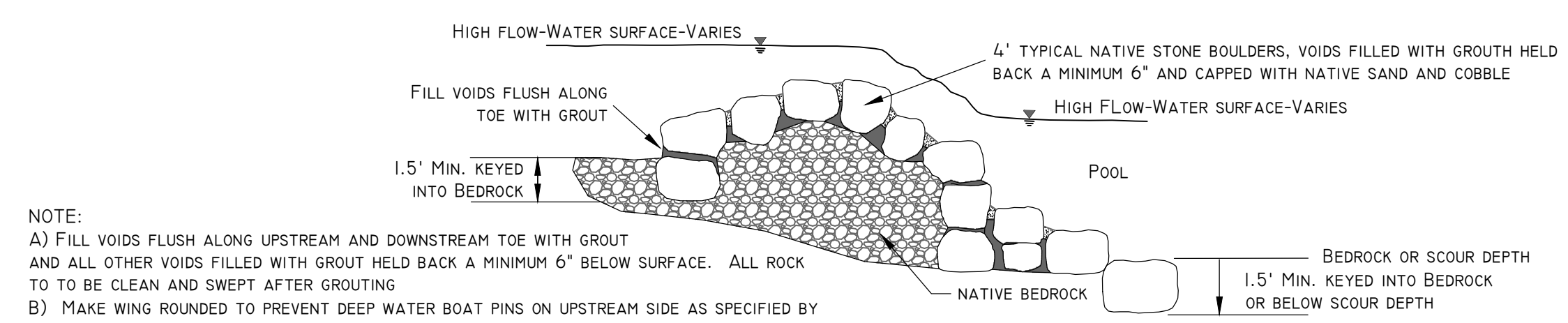
NOT FOR CONSTRUCTION



TYPICAL CURRENT DEFLECTOR AT PUT-IN  
PLAN VIEW N.T.S



CURRENT DEFLECTOR CROSS SECTION VIEW  
TYPICAL DETAIL - N.T.S



WHITEWATER AND HABITAT IMPROVEMENTS  
ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

TYPICAL INSTREAM DETAILS  
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PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS
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PLOT DATE: MAY 31, 2013
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SHEET NUMBER:  
  
**13**  
  
SHEET 13 OF 14



# NOT FOR CONSTRUCTION

**TREES**

Common Name	Botanical Name	Planting Zone	Height	Bloom Time	Bloom Color
Allegheny Serviceberry	Amelanchier laevis	Ponding to berm	25'	Apr-May	White
River Birch	Betula nigra	Ponding to middle	50'		
Redbud	Cercis canadensis	Middle to berm	15'	April-May	Pink

**TEMPLATES**

Use these examples to help you design a rain garden!

Source: [www.bwmpactdevelopment.org](http://www.bwmpactdevelopment.org)

**MORE INFORMATION**

CONTACT: Becky Roark, Rain Garden Resource Specialist  
EMAIL: [beckyroark@irwp.org](mailto:beckyroark@irwp.org)  
PHONE: 479-215-6623  
WEBSITE: [www.irwp.org](http://www.irwp.org)

**RESOURCES:**

[www.plants.usda.gov](http://www.plants.usda.gov)  
[www.anps.org](http://www.anps.org)  
[www.plantnative.org](http://www.plantnative.org)

## Native Plants for a Rain Garden



### WHY PLANT NATIVE?

Native vegetation, which can include grasses, forbes (wildflowers), shrubs and trees are an excellent way to enhance the ecological services that a rain garden provides.

They have adapted to our area to survive a wide range of conditions ranging from hot and dry to moist and boggy. Densely rooted native plants capture, filter, store and slowly release stormwater. They also trap and use nutrients such as nitrates and phosphates that otherwise would become run off and pollute nearby streams.

Native plants also attract important pollinators to our area such as bees, butterflies and hummingbirds and provide habitat for local species!



- OVERSIGHT
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATIONS AND PROJECT DRAWINGS APPLICABLE TO THE PROJECT AND SHALL CONFORM TO THE REGULATIONS, STANDARDS AND SPECIFICATIONS FOR THE SUBDIVISION, CONVEYANCE, DEVELOPMENT AND IMPROVEMENT OF UNINCORPORATED LAND IN BENTON COUNTY, REVISED APRIL, 2011.
  2. ALL EXISTING TOPOGRAPHIC SURVEY DATA AND UTILITY LOCATIONS SHOWN ON THESE PLANS HAS BEEN OBTAINED AND CERTIFIED BY OTHERS. RECREATION ENGINEERING AND PLANNING HAS UNDERTAKEN NO FIELD VERIFICATION OF THIS INFORMATION, MAKES NO REPRESENTATION PERTAINING THERETO, AND THEREFORE ASSUMES NO RESPONSIBILITY OR LIABILITY.
  3. THE CONTRACTOR SHALL CONFINE HIS OPERATIONS TO THE CONSTRUCTION LIMITS OF THE PROJECT AND IN NO WAY SHALL ENCROACHMENT OCCUR ONTO ADJACENT PROPERTIES UNLESS LEGAL EASEMENTS ARE OBTAINED. ALL FILL AND CUT SLOPES SHALL BE SETBACK FROM THE PROPERTY LINE IN ACCORDANCE WITH CHAPTER 70 OF THE UNIFORM BUILDING CODE. THE CONTRACTOR WILL BE HELD RESPONSIBLE FOR ANY AGREEMENTS NECESSARY FOR DAMAGE CAUSED BY CONSTRUCTION ACTIVITIES TO PUBLIC OR PRIVATE PROPERTY, INCLUDING UTILITIES.
  4. THE CONTRACTOR SHALL MAINTAIN THE PROPER TRAFFIC CONTROL DEVICES IN COMPLIANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES DURING CONSTRUCTION.
  5. THE CONTRACTOR SHALL IMPLEMENT THE NECESSARY SITE EROSION CONTROL MEASURES FOR INHIBITING DUST WIND AND AIR SEDIMENT MOVEMENT OFFSITE DURING ALL PHASES OR STAGES OF CONSTRUCTION. THESE MEASURES SHALL BE BASED ON BEST MANAGEMENT PRACTICES (BMPs).
  6. THE CONTRACTOR SHALL PROVIDE AN AREA TO STORE CONSTRUCTION DEBRIS WHERE IT WILL NOT BE A NUISANCE TO THE SURROUNDING NEIGHBORHOOD. ALL DEBRIS SHALL BE CONTAINED IN SUCH A MANNER THAT WILL PREVENT SCATTERING. ALL DEBRIS, INCLUDING TREES AND UNDERGROWTH SHALL BE DISPOSED OF PROPERLY WITHIN A LANDFILL. ALL DEBRIS SHALL BE REMOVED FROM THE SITE PRIOR TO FINAL SITE INSPECTION.
  7. RECREATION ENGINEERING AND PLANNING IS TO BE NOTIFIED PRIOR TO ANY PLAN CHANGES OR ON-SITE DESIGN MODIFICATIONS. ALL PLAN CHANGES MUST BE APPROVED BY A RECREATION ENGINEERING AND PLANNING REPRESENTATIVE.
  8. RECREATION ENGINEERING AND PLANNING WAIVES ANY AND ALL RESPONSIBILITY AND ARE NOT LIABLE FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, FOR PROBLEMS WHICH ARISE FROM OTHERS OR OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW RECREATION ENGINEERING AND PLANNING'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES, AMBIGUITIES OR CONFLICTS.
  9. THE CONSTRUCTION SURVEYOR SHALL VERIFY ALL BUILDING, PARKING AND SIDEWALK LOCATIONS AS WELL AS PROPOSED GRADES AND INVERT ELEVATIONS, FLOW LINES, ALIGNMENTS, SETBACKS AND TOPOGRAPHY PRIOR TO CONSTRUCTION. ALL PLACEMENTS, ALIGNMENTS, ELEVATIONS, DIMENSIONS, AND THE ORIENTATION OF ALL ELEMENTS SHOWN IN THE PLANS MUST BE APPROVED BY THE ENGINEER OR ENGINEER'S REPRESENTATIVE (REP ENGINEER).
  10. WORK SHALL NOT COMMENCE UNTIL AFTER THE DATE OF THE ON-SITE PRE-CONSTRUCTION MEETING WHICH MUST BE ATTENDED BY REPRESENTATIVES OF THE ENGINEER, PROJECT OWNER, CONTRACTOR, AND ANY SUB-CONTRACTORS. IF WORK DOES NOT BEGIN IMMEDIATELY FOLLOWING THE PRE-CONSTRUCTION MEETING, THE CONTRACTOR SHALL PROVIDE REPRESENTATIVES OF THE PROJECT OWNER, THE REP ENGINEER, ANY SUB-CONTRACTORS, AND RELEVANT AGENCIES TWO WEEKS NOTICE PRIOR TO ANY CONSTRUCTION ACTIVITIES.
  11. ADEQ GENERAL PERMIT NO. 150000 AND THE SWPPP MUST BE POSTED AND IMPLEMENTED ACCORDING TO THE REQUIREMENTS CONTAINED IN PART II.A.2.B AND D OF THE PERMIT.
  12. APPLICANT TO NOTE THAT A REGISTERED PROFESSIONAL ENGINEER OR ARCHITECT SHALL DEVELOP OR REVIEW STRUCTURAL DESIGN, SPECIFICATIONS AND PLANS FOR THE CONSTRUCTION AND SHALL CERTIFY THAT THE DESIGN AND METHODS OF CONSTRUCTION ARE IN ACCORDANCE WITH ACCEPTED STANDARDS OF PRACTICE AS OUTLINED IN THIS SUBSECTION. PROVIDE RELEVANT DOCUMENTATION.
  13. ROCK
  14. QUALITY
  15. INDIVIDUAL STONE BOULDERS SHALL BE FREE FROM CRACKS, SEAMS AND OTHER DEFECTS CONDUCTIVE TO ACCELERATED WEATHERING.
  16. IRREGULAR OR HIGHLY ANGULAR ROCKS SHALL NOT BE USED IN

FINISHING LOCATIONS. THE BOULDERS SHALL BE ROUNDED TO SUB-ROUNDED IN SHAPE. AT A MINIMUM EXPOSED ROCK SHOULD HAVE ONE FLAT SURFACE PLACED UP FOR EASE OF USE BY THE PUBLIC.

16. THE ROCK SHALL HAVE THE FOLLOWING PROPERTIES:

A) BULK SPECIFIC GRAVITY (SATURATED SURFACE-DRY BASIS) NOT LESS THAN 2.5.

B) ABSORPTION NOT MORE THAN 2% BY WEIGHT.

C) THE BULK SPECIFIC GRAVITY AND ABSORPTION SHALL BE DETERMINED BY ASTM METHOD C-127.

BOULDER PLACEMENT

17. STONE BOULDERS SHALL BE PLACED AS SHOWN ON THE DRAWINGS WITHOUT ANY GAPS, SO THAT EACH BOULDER TOUCHES THE NEXT ONE.

18. EACH STONE SHALL BE PLACED TO THE FINAL POSITION BE SUITABLE EQUIPMENT FOR HANDLING MATERIAL AND, IF NECESSARY, THE STONE SHALL BE PICKED UP AND REPOSITIONED.

19. DRAGLINE BUCKETS AND SKIPS SHALL NOT BE USED FOR PLACEMENT OF BOULDERS. IT SHOULD BE ANTICIPATED THAT RE-HANDLING OF INDIVIDUAL STONES, AFTER INITIAL PLACEMENT WILL BE REQUIRED TO ACHIEVE REQUIRED SLOPES, GRADES, ELEVATIONS AND POSITION.

20. THE ENGINEER SHALL OBSERVE ALL ROCK PLACEMENT AND APPROVE OF THE PLACEMENT BEFORE BOULDERS ARE CHINKED OR BACKFILLED, UNLESS EXPLICIT EXCEPTION IS MADE BY THE ENGINEER BEFORE PLACEMENT.

SITE PREPARATION- ROCKS PLACED IN BANK STONE TERRACING

21. ALL ROCK PLACED AS BANK TERRACING OR STABILIZATION SHALL BE KEYED INTO THE BANKS, IN UNDISTURBED SUBGRADE OR APPROPRIATE COMPACTED SUBGRADE FILL, A MINIMUM OF 12 INCHES IN THE HORIZONTAL AND VERTICAL DIRECTION.

22. ALL STONE TERRACING SHALL BE BACKFILLED WITH CLEAN FILL AND REVEGETATED AS NOTED IN THE DRAWINGS.

23. ALL ROCKS SHALL BE PLACED AS DIRECTED BY RECREATION ENGINEERING AND PLANNING REPRESENTATIVE.

PERMITS

24. AS NOTED OR DEFINED IN ALL RELEVANT PERMITS, THE CONTRACTOR SHALL HAVE COPIES OF ANY REQUIRED PERMITS ON SITE AT ALL TIMES. THE PERMITS MUST BE DISPLAYED IN A CONSPICUOUS LOCATION.

25. THE CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH ALL STIPULATIONS AND CONDITIONS OF ALL REQUIRED PERMITS.

UTILITIES

26. THE CONTRACTOR SHALL LOCATE AND MARK ALL UTILITIES WITHIN THE PROJECT AREA PRIOR TO CONSTRUCTION AND SHALL NOT RELY SOLELY ON THESE CONSTRUCTION PLANS FOR UTILITY LOCATIONS. CONTRACTOR MUST COMPLETE ALL UTILITY LOCATES PRIOR TO CONSTRUCTION. FOR UTILITY LOCATES CONTACT ARKANSAS ONE CALL 1-800-482-8998. DAMAGE TO ANY EXISTING UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.

27. NO EXCAVATION SHALL OCCUR IN THE AREA SURROUNDING A UTILITY CROSSING. NO IMPROVEMENTS THAT MAY CAUSE SCOUR OR EROSION, ARE TO BE PLACED IN THE VICINITY OF A UTILITY CROSSING.

28. IF UTILITIES ARE IDENTIFIED WITHIN THE PROJECT AREA, A MINIMUM BUFFER OF NO DISTURBANCE IS TO BE MAINTAINED ON ALL UTILITY CROSSINGS AS DEFINED AND APPROPRIATELY MARKED IN THE FIELD.

BASE COURSE

29. THE BASE COURSE AND SURFACING SHALL BE PLACED ON A FIRM FOUNDATION THAT IS THOROUGHLY STABLE. THE TOP SIX INCHES OF THE SUBGRADE SHALL BE COMPACTED TO A DENSITY NOT LESS THAN 95% OF THE MAXIMUM DENSITY OBTAINED BY THE STANDARD METHOD OF TEST FOR THE COMPACTION AND DENSITY OF SOILS, AASHTO DESIGNATION T-99. AREAS OF SOFT UNSUITABLE MATERIAL SHALL BE COMPLETELY EXCAVATED AND REPLACED WITH GOOD EMBANKMENT MATERIAL.

30. THE BASE COURSE SHALL BE EITHER GRAVEL OR CRUSHED STONE. THE BASE COURSE MAY BE DELETED FOR PORTIONS OF A ROAD WHERE THE SUBGRADE MEETS THE REQUIREMENTS AS OUTLINED BELOW FOR COMPACTION, GRADATION, AND SHAPING. CONSTRUCTION METHODS THE BASE COURSE MATERIAL SHALL BE PLACED ON A COMPLETED AND APPROVED SUBGRADE THAT HAS BEEN BLADED SMOOTH AND UNIFORM, AND CONFORMING TO THE TYPICAL SECTION SHOWN. BASE COURSE MATERIAL SHALL NOT BE PLACED ON A FROZEN SUBGRADE. THE BASE COURSE SHALL BE PLACED ON THE SUBGRADE AND SPREAD UNIFORMLY TO SUCH DEPTH AND LINES THAT WHEN COMPACTED, IT WILL HAVE THE THICKNESS, WIDTH AND CROSS SECTION SHOWN ON THE PLANS. WHEN THE COMPACTED DEPTH OF THE BASE COURSE AS SHOWN ON THE TYPICAL SECTION EXCEEDS SIX

INCHES, THE MATERIAL SHALL BE PLACED IN TWO OR MORE COURSES OF APPROXIMATELY EQUAL DEPTHS. NO COURSE SHALL EXCEED SIX INCHES IN COMPACTED THICKNESS. EACH COURSE SHALL BE COMPACTED BY ANY SATISFACTORY METHOD THAT WILL OBTAIN A DENSITY OF 95% OF A LABORATORY RUN PROCTOR DENSITY TEST ON THE MATERIAL.

BLACKTOP SPECIFICATIONS

31. ASPHALTIC CONCRETE HOT MIX SURFACE COURSE THIS ITEM SHALL CONSIST OF AN ASPHALTIC CONCRETE WEARING SURFACE COMPOSED OF A COMPACTED MIXTURE OF MINERAL AGGREGATE AND ASPHALT CEMENT, CONSTRUCTED ON THE COMPLETED AND ACCEPTED BASE COURSE. THE WEARING SURFACE SHALL BE COMPOSED OF A MIXTURE OF MINERAL AGGREGATE AND ASPHALT CEMENT AS SHOWN FOR TYPE II, STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, ARKANSAS STATE HIGHWAY COMMISSION. THE MINERAL AGGREGATE FOR ASPHALTIC CONCRETE HOT MIX SURFACE COURSE SHALL CONSIST OF A COMBINATION OF COARSE AGGREGATE, FINE AGGREGATE AND MINERAL FILLER. THE COARSE AGGREGATE SHALL BE CRUSHED GRAVEL OR CRUSHED STONE. THE COARSE AGGREGATE IS THAT FRACTION RETAINED ON THE NUMBER 10 SIEVE. CRUSHED STONE SHALL CONSIST OF HARD, TOUGH, DURABLE FRAGMENTS OF ROCK OF UNIFORM QUALITY, FREE FROM AN EXCESS OF SOFT PARTICLES. GRAVEL SHALL CONSIST OF HARD, DURABLE PEBBLES FREE FROM AN EXCESS OF SOFT PARTICLES. CRUSHED GRAVEL IS THAT GRAVEL OF WHICH ONE HUNDRED PERCENT OF THE PARTICLES HAVE BEEN PRODUCED FROM LARGER PARTICLES. ASPHALT CEMENT SHALL BE PREPARED FROM PETROLEUM, SHALL BE HOMOGENEOUS, FREE FROM WATER, SHALL NOT FOAM WHEN HEATED TO 347 DEGREES F., AND SHALL COMPLY WITH SPECIFICATIONS SHOW IN STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, ARKANSAS STATE HIGHWAY COMMISSION. THE MIXTURE SHALL BE COMPACTED WHILE IN A PLASTIC CONDITION AS SOON AFTER BEING SPREAD AS IT WILL BEAR THE WEIGHT OF THE ROLLERS WITHOUT UNDESIRABLE DISPLACEMENT. NO ROLLER SHALL BE OPERATED AT A SPEED GREATER THAN 3 MILES PER HOUR. THE FINISHED SURFACE COARSE SHALL BE COMPACTED TO NOT LESS THAN 92% OF THE THEORETICAL DENSITY. HOT MIX BITUMINOUS MATERIAL SHALL NOT BE MIXED OR PLACED WHEN THE AIR TEMPERATURE IS BELOW 40 DEGREES F. OR WHEN THERE IS FROST ON THE BASE OR SUBGRADE.

CONCRETE SPECIFICATIONS

32. ALL CONCRETE SHALL BE 4000PSI AND SHALL MEET THE FOLLOWING REQUIREMENTS:

A. CONTRACTOR SHALL SUBMIT FOR REVIEW THE PROPOSED MIX DESIGN.

B. AN APPROVED CURING COMPOUND SHALL BE USED ON ALL FLAT WORK.

C. MAXIMUM SPACING OF CONTRACTION JOINTS IN CURB AND GUTTER SHALL BE 10 FEET.

D. SIDEWALKS, DRIVE APRONS AND HANDICAP RAMPS CONTRACTION JOINTS SHALL PROVIDE PANELS AS NEARLY SQUARE AS PRACTICAL. IN RECTANGULAR PANELS, THE LONG SIDE SHALL BE NO LONGER THAN 1-1/2 TIMES AS LONG AS THE SHORT SIDE.

E. ALL SIDEWALK CONTRACTION JOINTS SHALL BE TOOLED UNLESS SAW CUT OR STRIP LOCK IS APPROVED. THE GROOVE OF CONTRACTION JOINTS SHALL BE 1/4 OF THE SLAB THICKNESS. THE RADIUS AT THE TOP OF THE GROOVE SHALL BE AS SMALL AS POSSIBLE.

F. CONTRACTION JOINTS SHALL BE PROVIDED AT RE-ENTRANT CORNERS. FIXED OBJECTS ISOLATED WITHIN AN INDIVIDUAL SECTION SHALL BE ISOLATED FROM THE MAIN SLAB WITH EXPANSION MATERIAL. TWO JOINTS SHALL RADIATE FROM THE OBJECT AND SHALL BE PERPENDICULAR TO THE JOINTS OF THE INDIVIDUAL SECTION.

G. EXPANSION JOINTS SHALL BE INSTALLED IN SIDEWALKS AT APPROXIMATELY 100' INTERVALS.

H. EXPANSION JOINTS SHALL BE INSTALLED WHEN ABUTTING CONCRETE OR A FIXED STRUCTURE UNLESS SHOWN OTHERWISE IN THE PROJECT DRAWINGS OR AS APPROVED BY THE COUNTY PUBLIC WORKS DIRECTOR OR COUNTY ENGINEER.

I. EXPANSION JOINT MATERIAL SHALL BE 1/2" THICK AND SHALL EXTEND THE FULL DEPTH OF THE CONTACT SURFACE.

33. ALL PAVING GRADES SHALL NOT EXCEED A 5% SLOPE. ALL SIDEWALK GRADES SHALL NOT EXCEED A 5% SLOPE IN THE LONGITUDINAL DIRECTION. ALL SIDEWALK CROSS SLOPES SHALL NOT EXCEED 2%. THE MINIMUM SLOPE IN ALL DIRECTIONS TO PREVENT POOLING OF WATER IS 1%. ALL SLOPES SHALL MEET THESE CRITERIA UNLESS NOTED ON THE PLANS.

32. THE COUNTY MAY PROVIDE SOME TESTING FOR THEIR OWN BENEFIT IN ADDITION TO TESTING REQUIRED BY THE OWNER/DEVELOPER AND/OR CONTRACTOR. DEVELOPER/CONTRACTOR SHALL NOTIFY OWNER AND/OR COUNTY SUFFICIENTLY IN ADVANCE OF OPERATIONS AND SHALL PROVIDE ACCESS TO THE WORK TO BE TESTED. IF TESTS FAIL TO MEET SPECIFIED REQUIREMENTS, THE CONTRACTOR SHALL PROMPTLY REMEDY SUCH DEFICIENCIES, AND SHALL BE RESPONSIBLE TO THE OWNER FOR THE COSTS OF ANY RETESTING DEEMED NECESSARY TO VERIFY CORRECTION OF THE DEFICIENCY.



RECREATION ENGINEERING  
AND PLANNING  
485 ARAPAHOE AVE.  
BOULDER | CO | 80302  
WWW.BOATERPARKS.COM

## WHITEWATER AND HABITAT IMPROVEMENTS

ILLINOIS RIVER, SILOAM SPRINGS, ARKANSAS

SPECIFICATIONS AND NOTES  
NOT FOR CONSTRUCTION

PROJECT OWNER:  
CITY OF SILOAM SPRINGS  
C/O DAVID CAMERON  
PO Box 80  
SILOAM SPRINGS, AR 72761

DESIGNED: SS  
DRAFTED: AR  
CHECKED: GL, SS  
PLOT DATE: MAY 31, 2013  
REVISIONS:

SHEET NUMBER:

14

SHEET 14 OF 14